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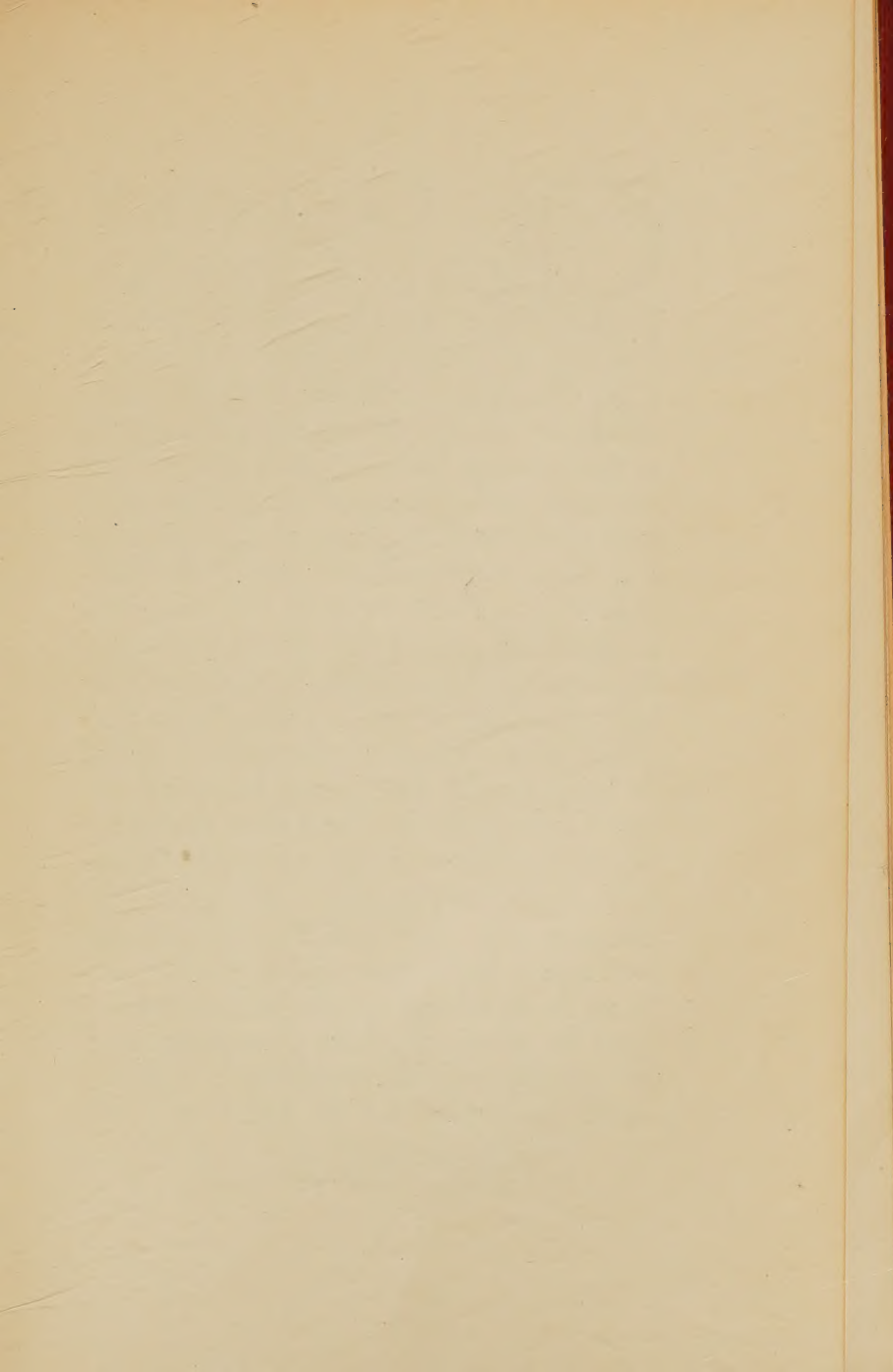
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THE COUNTRY BOY'S CREED.

I believe that the Country which God made is more beautiful than the City which man made; that life out-of-doors and in touch with the earth is the natural life of man. I believe that work is work wherever we find it, but that work with Nature is more inspiring than work with the most intricate machinery. I believe that the dignity of labor depends not on what you do, but on how you do it; that opportunity comes to a boy on the farm as often as to a boy in the city, that life is larger and freer and happier on the farm than in the town, that my success depends not upon my location, but upon myself—not upon my dreams, but upon what I actually do, not upon luck, but upon pluck. I believe in working when you work — and in playing when you play and in giving and demanding a square deal in every act of life. ❖—❖—❖

Edmund G. Brown

RURAL EDUCATION

A COMPLETE COURSE OF STUDY
FOR MODERN RURAL SCHOOLS

— BY —

A. E. PICKARD

SUPERINTENDENT OF SCHOOLS
COKATO, MINNESOTA

WEBB PUBLISHING COMPANY
ST. PAUL, MINN.

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PREFACE

This book is the outgrowth of a series of lectures on Rural School Organization in the Minnesota state summer schools for teachers and of several revised courses of study planned for and executed in rural schools under the supervision of the author.

While there are many books that treat of school organization and management, but few, if any of them, are written from the modern standpoint of an industrialized rural school; that is, a redirected course of study in which a broader and better country life is the ultimate aim. Except from this point of view the academic outlines and discussions probably contain little that is new. Even the division plan to avoid the evils of a closely graded rural school is not entirely an innovation. That some plan to avoid the thirty or forty daily recitations usually found in the country schools must be put into active operation before real efficiency can be expected is admitted by all who are familiar with the situation. The plan here suggested is not mere theory. It has been successfully used by scores of teachers during the last half dozen years. After all, "As is the teacher so is the school."

In this period of educational unrest there is need for something more definite to guide the inexperienced teacher who has so little direct supervision, especially the rural schoolteacher. In this connection the section of the book devoted to industrial work should prove helpful.

Finally, rural education is broader than the curriculum of the schoolroom, which fact the author has tried to emphasize in some of the chapters in the first and last sec-

tions of the book. Rural teachers, normal training classes, farmers' clubs and reading circle organizations should be benefited by discussions of some of the topics here suggested. If in some small way the book may be an inspiration to those who are laboring for the upbuilding and ennobling of rural life, it will not have been in vain.

Acknowledgments are cheerfully given to all those who have in any way assisted in the preparation of the book. Thanks are especially due to my colleagues, Mr. L. E. Stockwell for assistance in the chapter on "Manual Training"; Miss Marie Henegren for much valuable aid in preparing the chapters on "The Hot Lunch" and "Sewing in Rural Schools"; and Mrs. L. A. Bortel for suggestions on the music outlines.

Gratitude is also extended to Mr. Lorenzo Zwickey, art supervisor and lecturer, for his generous aid in preparing the outlines on "Art"; Mr. J. B. Frear and the Minnesota College of Agriculture for kind permission to select material from Bulletin 136 for the rope work given in Chapter XVII; Miss Alma B. Campbell and Mr. Carl Anderson, superintendents of Dodge and McLeod Counties, Minnesota, respectively, for the loan of numerous industrial booklets; and to the numerous friends who have read various chapters and offered valuable suggestions.

A. E. PICKARD.

Cokato, Minnesota,
May, 1915.

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RURAL EDUCATION

CHAPTER I INTRODUCTION

The average reader omits the preface of a book and seldom reads the appendix. Hence, much of what might properly be placed in these divisions has been included in the regular chapters.

Most books of this kind are of very general nature. Our purpose is to supplement those already available with more definite suggestions and outlines for programs and courses of study not only for the academic work, but also for the so-called industrial work, some of which is now demanded in nearly every community.

During the last few years education has assumed new aspects, which are reflected from the courses of study. The answers of students and parents as to what constitutes an education and why certain courses are pursued are interesting. Usually the laboring man wishes his children to be educated so that they will not have to work as hard as he had. The well-to-do desire education for culture and social distinction. Others see the vocational side only. Too often the teacher's idea is to cram the students' memories with facts from books. Without further discussion we might define education as preparation for life.

It should be remembered that the school is only one factor in education, and, important as it is, without the co-operation of the home and the church, the needs of the child will

not be properly supplied. The world has seen many an educated man who has had little or no schooling, while some college graduates are sorely in need of education.

The different units of our system of education in America have been too dependent upon one another; that is, the aim of the elementary school has been preparation for the high school; the high school has prepared for college, and so on. This routine is perhaps not so true of the average high school the last ten or twenty years, as the greatest changes in the courses of study have occurred in these schools; but it is still true in the great majority of rural schools. At least their courses of study have not yet been adjusted to meet the needs of the community and to make education a preparation for life.

The tremendous importance of new adjustment can be realized when we reflect that ninety-five per cent of our population have received their education, as far as the schools are concerned, in the elementary school, most of them in the rural school.

We appreciate that the necessities of the people of a century ago, or even of twenty-five years ago, are not the needs of the present generation; but we have been slow to adjust the schools to the new conditions. The three R's will no longer meet the needs of society or business. With the demand for more subjects to be taught in the elementary school as well as in the high school comes the necessity of reorganizing not only our courses of study but the units that make up our educational system and the mechanics of the schoolroom. Our hard and fast graded system has some advantages, but many disadvantages. It could be tolerated in our town and city schools, if it were not for the fact that the rural schools are trying to imitate the city schools. The author has made a study of the rural school

problem for the last few years in his work in summer training schools for teachers, and has found a great many cases where one teacher has not only attempted to conduct eight grades, but has actually been trying to run a kindergarten as well; that is, she has had a sub-first grade or chart class. In some cases so-called high school work has been done also. Elimination, combination, and alternation will at least partially help to cure some ills of the rural school.

In commenting on the American school system some one has made the remark that no sane person would have planned it as it now exists. Who has determined that it should take just eight years to complete what is known as the elementary school, four years for the prescribed high school course, four for college, and then, for the few who can afford the time and means, from one to four years more in some technical school to fit them for their vocations? How came we to have eight grades in our elementary schools? Was it a gradual evolution based upon sound philosophy and pedagogy? On the contrary, the history of education will show that it has come about by chance. The early New England schools were conducted by the clergy. These later developed into our present intermediate grades, the fundamentals being given in the homes. Later the primary schools systematized the home training and prepared for the earlier established schools. Then the academies were founded, and as it became evident that the elementary schools did not fully prepare those who could attend the higher institution, the grammar schools came into existence to meet this defect. The academies were organized, of course, to prepare students for the colleges, then few in number.

Thus it can be seen that from the beginning each unit was made the stepping-stone for that immediately following, and it is only natural that that idea has remained so long.

From these units, having their origin in different ways and at different times, have come our three divisions of the elementary public school, primary, intermediate, and grammar, a grade for each year; the academy is represented by the public high school; and the state universities and denominational colleges have adopted largely the organization and curricula of the earlier endowed institutions, as Harvard, King's College, now Columbia, and William and Mary's.

It is said that there are over eighteen millions of students in the United States, and about one half a million teachers, an average of about one for every three dozen pupils. Many teachers have more than this number. An average animal trainer will be given about one twelfth as many at one time, and the most valuable animals have two or three trainers. This is not because horses, for example, are thought to be more valuable than children, but because we have not yet learned to value the training of children.

While, perhaps, it is not the most important, it is well for us to remember the economic side of education. If the parent could be made to realize that each day in school is actually worth dollars to the child, we should not have need for compulsory attendance laws.

Comparing an estimate of the average earning capacity of an elementary school graduate with a high school graduate we find the former capable of earning about two hundred and forty dollars the first year, and the latter about six hundred. It can readily be seen that the sum which put at interest at six per cent will produce the annual earning capacity, will represent the value of the earner. In the case of the elementary school graduate this would be four thousand dollars. This sum probably also represents the average of the grade graduate over the uneducated person. The estimate is for only the first few years after school life. In

the case of the high school graduate the acquired capital would be equal to ten thousand dollars. Counting one hundred and eighty days to the year, the grade pupil would accumulate capital at the rate of \$2.77 a day for eight years, and the high school pupil, at the rate of \$8.44 a day for four years. A high school graduate, therefore, has laid away a working capital of \$4.63 a day for twelve years. Approximately the same relative increase of earning capacity would be true for normal and college graduates. It should, therefore, be clear that education has a money value, and it is shortsightedness on the part of parents to allow children to remain out of school. If the parents were actually receiving this amount in wages for the attendance of their children at school, the solution of the problem would be easy. Instead, it takes the form of an annuity for the children themselves. Parents, as a rule, are not yet altruistic enough in this respect.

An authority has stated that about three fourths of the students leave school before finishing the common branches. About one third of these leave because poor circumstances at home do not permit their attendance at school, while two thirds leave because they and their parents do not find what they want in the schools. The school authorities must meet these conditions squarely and adjust the schools to their environment. The practical trend in modern education should help to solve the problem.

Comparatively few schools are run on a business basis. It is the duty of the board of education to attend to the finances of the district. Too often members are elected who know little of business principles and less of pedagogical precepts. As soon as school boards come to see that it is wise for them to look after financial affairs only, leaving the management of the school, the ordering of necessary

supplies, etc., to the teacher, or superintendent where there is one, there will be at least one step toward more efficiency. If the teacher is not big enough for these responsibilities, one should be secured who is. I have known schools to wait weeks for supplies, because some board member thought it was his right and honor to order supplies that the teacher might have obtained in a few days. Board members should remember that they do not suddenly become educational experts merely because they happen to be elected to the board of education. A certain member of a high school board of education a few years ago could neither read nor write. While this is an exceptional case, it is, nevertheless, true that communities should show more interest in their schools and use more care in the selection of their officers. More than one school board has had to go out after citizens to get a quorum at the annual school meeting. It is only when one of the periodic "fights" is on in the district that the full voting strength is out. The county board for governing rural schools is gaining ground, and should relieve the present situation materially. Probably few board members would admit that they are responsible for part of the inefficiency found in the schools; but teachers realize the true situation even if the board members do not. Such conditions are not confined entirely to rural schools, but are usually better in independent districts.

In the commercial world the watch word is efficiency. Every piece of machinery is made with that in view. Every worker must come up to a certain standard. Educational efficiency has been the recent slogan. It would seem that there is much room for improvement in this particular, especially in the rural schools. One has only to check the time wasted in the mechanics of the schoolroom, the poorly arranged programs of many young teachers, aimless seat-

work and study programs, to say nothing of the ill-adapted courses of study for country students, to realize the opportunity for increased efficiency in the rural schools. If only ten per cent of the cost of the schools of the country could be saved by increased efficiency, it would mean a saving of about one hundred millions of dollars annually. It is a matter that manufacturing establishments would investigate. Schools cannot afford to overlook it. This amount spent on better equipment and increase of teachers' salaries would further increase the efficiency. It is not cheaper, but better schools that the average community should have. School boards and teachers should take this view into consideration.

A subject that should be discussed in every school district until all voters and taxpayers understand it, is how the school funds are raised and to what sources the taxes paid by each individual go. These facts should be taught in the schools and discussed at the annual school meeting, farmers' clubs and other gatherings. Many invariably charge up any increase in taxes to the schools, whether they may or may not have been the cause of it. A statement from the county auditor will show just where the money paid in taxes goes. Each teacher should get this list for her district, and make it the basis for supplementary work in arithmetic. The following is a tabulation for a rural district in Minnesota in 1914.

LOCAL TAXES.

To What Sources.	Rate on Valuation.
State revenue.....	3.8 mills
State school fund.....	1.23 mills
County revenue.....	2.53 mills
County road and bridge.....	2.85 mills
County poor.....	.29 mills
Town revenue (township).....	.9 mills
Town road and bridge.....	5.9 mills
Local tax.....	5.00 mills
Total taxes.....	22.5 mills

From this table it can be seen that part of the taxes goes to the state, part to the county, part to the township, and the rest to the school district. In the above case it was about equally divided among the four. The figures naturally vary a little from year to year, but the sources to which the taxes are paid remain the same. Knowing the assessor's valuation of the property, any student who understands simple decimals can determine the amount paid to each source. It is well to be able to compare what the local district raises for the support of the schools with the money received from other sources for this purpose.

Most states provide aid for the schools in some way. Minnesota is one of the most conspicuous in this respect. A wise provision in the state constitution set aside sections sixteen and thirty-six of each township as school lands. These lands with the timber on them have now mostly been sold and the money has made a permanent school fund. Recently iron ore has been discovered on school lands and the royalties from this will increase the school fund enormously. This fund is now second only to that of Texas and amounts to about twenty-five millions of dollars. It is estimated that it will eventually reach two hundred or two hundred and fifty millions. The interest on this, now amounting to about one million dollars annually, is apportioned to the districts of the state according to the number of students in the district coming up to certain requirements prescribed by the state authorities. This amount is now about six dollars per pupil.

There are other forms of aid in this state by legislative enactment for the various classes of schools. State high schools now receive \$1,800 annually, with from \$1,200 to \$2,800 extra for those having teachers' training departments. Twelve hundred dollars is given for one teacher, \$2,000 for

two teachers, and \$2,800 for three. Graded schools receive \$600, and \$100 for each grade teacher in excess of four and \$250 for each high school teacher. Total aid not to exceed \$1,300.

Rural schools in session at least eight months receive \$150 for each teacher holding a first class certificate. Rural schools in session at least seven months receive \$100 for each teacher holding a second class certificate.

Each school receives, in addition to other aid, library aid amounting to \$10 for each teacher employed, with a maximum of \$25 to a building, provided the district appropriates a like amount for the same purpose.

In many schools the local districts do not pay half the running expenses of the schools. The following statement of a rural district shows this.

Sources	Amount
Apportionment, 50 students at \$7.....	\$350
State Aid, first class school.....	150
State Aid, associated.....	50
State Aid, library.....	10
Total state aid.....	<hr/> \$560
Local school tax, two and one half mills.....	192
Total resources.....	<hr/> \$752

In its report to the Educational Association at St. Paul, October, 1914, the Minnesota Rural School Commission recommended that:

"Every child in the state of Minnesota has an unquestioned right to equal school privileges regardless of wealth, social position or location.

That the State Aid at present only reaches the schools best able to help themselves, and that the most needy schools not able to meet requirements for state aid are taxed to help the more fortunate, the county unit should be used as a basis for taxation for school purposes and that the finances, length of term, kind of teacher, etc., be in the hands of a county board of education, elected at the annual school meeting and consisting of one member from each commissioner dis-

trict, leaving each district intact for the details of its own management. The County Superintendent to be appointed by this Board.

That consolidation has been an unqualified success in nearly every case and that it should be encouraged by every possible means at command, wherever conditions are such as to make it practicable. Finally this Commission has found that the rural schools have better equipment, better sanitation, better grading, better attendance, longer school year, better co-operation, broader and more practical knowledge, better and more libraries, more free textbooks, more attractive school rooms, better buildings, more State Aid, higher salaries, better teachers, better supervision, the training of the hand through industrial work, domestic science, agriculture, manual training, better morals and more loyal friends than ever before."

This would seem to be a more equitable distribution of school taxes. In some states, as California, the school tax is uniform throughout the commonwealth.

CHAPTER II

SUGGESTIONS FOR PARENTS AND TEACHERS

There is urgent need for closer co-operation between parents and teachers. Very often the success of a school is measured by the sympathy of its supporters. Teachers should move into a new community before school opens, in order to become acquainted with the parents of all their pupils. Some teachers object to doing this on the ground that it is contrary to social etiquette. This notion is likely to result in sorrow, if the teachers meet the parents for the first time after they have had to punish the children. If teachers object to making social calls before meeting the parents, they should make professional calls. A favorable acquaintance must be established as soon as possible, if the best results are to be attained.

Parents should be equally interested with the teacher in the school and the training of their children. An informal gathering at the schoolhouse or some home shortly after school opens tends to promote acquaintance and sympathy. The school children should be present also. Such a meeting will encourage the teacher at the start and make her feel at home in the community. But mutual interest should not end there.

Regular meetings of parents and teachers at the school house are helping to solve many problems. These meetings should be held at intervals of about once a month and consist of programs and discussions, and may be followed by light refreshments and a social hour. In most places teachers must take the initiative in this work, and should be prepared to do so.

Parents often do not realize how much help they can give

the teacher and that without this aid they impede the progress of their own children. Children are allowed to criticise the teacher at home and with other children. Sometimes the parents even join in the criticism. It is conceded that at the outset parents and teachers have only the welfare of the child at heart. Both should keep this common interest constantly in mind, and, when little difficulties arise, as they always will, it is the duty of the parents, as well as of the teacher, to see that they are speedily adjusted.

A prominent educational lecturer and writer makes the statement that the average school has better discipline than the average home, and he is undoubtedly correct. Yet the parents who cannot manage their children at home are the very ones who usually make the most trouble when discipline is administered in school. I like the philosophy of that parent who told his children that every time they got a "lick-in'" at school, they would get another when they got home. He didn't stop to inquire whether they were right or wrong, but he had faith in the teacher.

Corporal punishment should be used only as a last resort either in the home or school, but that parent or district that prohibits its use is unwise, as there are always children to whom physical force makes a stronger appeal than reason. Granting that there is always some other way out of the situation, if the teacher only knew how, there are times when the best interests of the school will not permit further experimentation. The parent who will deny the teacher the use of the same methods he uses in correcting his children is unjust and arbitrary. A wholesome, old-fashioned spanking properly administered, never hurt anybody who deserved it, and often did much good.

On the other hand, punishment should be used with great discretion. The best teachers seldom have to resort

to it. A case or two at the beginning of an administration will usually suffice. A good rule for both parents and teachers to follow is, "Never punish a child while you are angry." It is a serious offence to make discipline a personal matter, and yet many persons do. A quiet, earnest talk will often do as much or more good than punishment. Punishment should be followed not only with respect for authority on the part of the child, but there should be the best personal feeling between the persons concerned. This result is not always easy to obtain, but it is a pretty sure test of the efficacy of the punishment. One child under school age used to thank the parent after each of these little "times," as he would for any other service rendered. There was usually not the slightest enmity, and the frequency of the occasions became less as he advanced in years.

The best way to avoid mischief and punishment is to arouse the pupil's interest in his studies and especially in collateral activities such as school gardens, care of an animal or the investigation of some valuable facts. Unruly boys, when thus engaged, have often become forceful and progressive factors in a community and the delight of a teacher. They are generally not so bad as that their energies have not been directed into congenial channels.

The responsibility of the parent in the training of the child before it enters school cannot be too strongly emphasized. Some children are spoiled before they are a year old. That is, they have learned to have their own way, because the parent unwittingly compromises or gives in entirely to save time and bother. Between a fond mother and an indulgent father, many a child is handicapped for life, and there is usually trouble in store for the teacher. It has been said that every woman should have a course in psychology and child study that she may properly train her own chil-

dren. It may be said with equal truth of the men. Too often the mother is the only disciplinarian in the home. The father is away, or too busy, or indifferent. Occasionally a well meaning but misguided parent actually encourages that "smarty" spirit that is now so common among young Americans, on the plea that it develops originality and independence. If there is one thing needed more than any other in the training of the present generation, it is the proper respect for constituted authority in the home, the school, and elsewhere.

Again, parents are sometimes not careful to use the same methods in training the children. What the father requires in certain cases is not carried out by the mother in his absence, and vice versa. In this way it is easy for the child to set up two standards of discipline, or "behavior" as he calls it, and it may lead to deceitfulness on his part. Matters are still further complicated if the teacher uses her own characteristic methods. Here is another reason why the teacher should be intimate enough with the parents to be able to discuss these matters freely with them.

Directions to children should be positive. Speak once and be sure that you are understood. The careless, ineffective way in which many suggestions are given accounts for the fact that some persons are taken only half seriously. Directions are too frequently repeated two or three times in order to secure obedience. Have you ever been in a home where you felt like taking matters into your own hands? Are you sure you have never seen similar conditions in the schoolroom? This state of affairs is not the fault of the children in either case.

Education is an evolutionary process, an unfolding, constant development. The old idea of "pouring in" is supposed to be changed to the "drawing out" process. The

brain is made up of millions of small living particles, cells, each capable of development under certain conditions, better at certain ages of the individual than others, and very much less capable after a certain age. Just as the muscles of the body develop with use and shrink away with lack of exercise, so the cells of the brain must be used, and a person must do mental work in order to develop them and to maintain their development. As it is difficult for elderly persons to learn a new language, because they have passed the age for that kind of training, so it is impossible for a young child to study algebra or grammar, because it has not yet reached the age for reasoning. Yet, knowing these principles, how many of us put them into practice? The students do not know their lessons and the teacher recites for them, that is, she does the talking. Parents work the "examples" for children so they may get one hundred per cent in arithmetic at school the next day. Is this the drawing out process? How many brain cells have been developed? Undoubtedly some, but not the kind that should be developed.

Science has demonstrated that mental development is dependent upon physical. A sound mind can be produced only in a healthy body. Good health is, therefore, one of the first requisites in education. Games and outdoor sports should be provided not only in public parks and school grounds, but, if possible, in every home yard. Parents sometimes object to having children waste time in play and say they can find plenty of work at home for them to do. There are chores to do, and the woodpile needs replenishing or there are floors to scrub. Those who object to organized play as exercise and recreation, should remember there is much truth in the old saying, "All work and no play makes Jack a dull boy." Games, outdoor life, and good health are

so closely related to each other and to mental development that they will be discussed fully in the next two chapters.

Child study has brought out the fact that there are three more or less distinct periods in the physical and mental development of the individual: (1) the period before eight years, in which the child is taught by precept and learns largely by imitation; (2) from eight to fourteen, sometimes spoken of as the drill age; and (3) that after fourteen, known as the adolescent period. Knowledge of the chief characteristics of these periods will greatly assist those in charge of the training of children, and books on this subject should be read by every parent and teacher.

Most of the first period, of course, is spent in the home before the child attends school. The importance of proper home training is evident from the statement of authorities that the child learns more during the first five years of its life than in any other five years. Its chief acquisition is a language, and, if incorrect expressions are learned at this time, because they are heard in the home, they are likely to be used in after life. Every teacher knows the difficulty of undoing these earliest impressions. Biologists tell us that the child develops in the same manner as the race. Hence, we find in the young child those traits characteristic of primitive man, such as fear, curiosity, imitation, selfishness, action, intense sensations, destructiveness, color, life, and motion. Other manifestations of this period are love of animals, desire for praise, emulation, and interest in concrete wholes. After the destructive period, when the young child wants to tear and break everything in his possession, comes the constructive age when he wants to make things. Building blocks, boxes, etc., will satisfy these wants. Froebel's gifts, beginning with the colored balls, are excellent for the home and the first year in school, as they have been

carefully worked out on pedagogical principles by that great educator. This is also the inquisitive age of the child, and "why" and "what" are his favorite words. Little interest in time is shown. It is a physical impossibility for children to reflect on things as those who are older, because their connective mental fiber has not yet developed. Hence, teaching is done by precept, and the child does what he sees others do. Imitation is the process, not reasoning. It can readily be seen that this formative period is the most important in the life of the child. A good primary teacher should be obtained at all costs, but parents should understand that they rob the child of its inherent right if they do not fit themselves for its proper guidance when it is most dependent on them.

The period from eight to fourteen is one where the teacher can do much for the child, if the parents have done their duty. It is the drill age in school. The latter part of this period is not one of rapid physical growth, and the child can stand plenty of mental work. There is no danger of overwork for the healthy child during this time. Things that require memory work and much repetition, such as tables in arithmetic, correct expressions in language, spelling, facts in geography, and literary selections should be emphasized. Later on, drills and reviews will be disliked, but not by the average student at this time. Much interest is shown in how things are made, hence the zeal with which manual training and home economics are taken up when there is opportunity. Interest is also shown in structure, material, form, size, place, detail, adventure, etc. Animal stories, particularly bear stories for the boys, will always hold the attention. Remember that this is the great habit forming period.

At about fourteen, a year or two earlier usually for girls, a profound change comes over the individual, the period of

adolescence, or the beginning of maturity. This period is usually accompanied by rapid physical growth for a few years. It is, perhaps, the most trying time at home or in school and requires much tact and skill in management. Students are changeable and must be "handled with gloves." Teachers should remember that more or less of these apparently abnormal traits are perfectly natural, and make the best of the situation. There is real danger of overwork at this time, but it is well for parents to keep in mind that it is more likely to come about from social functions and keeping late hours than from work in the schoolroom. Boys need the companionship of fathers and men teachers who are interested in their welfare, and girls should have the advice and sympathy of mothers and women teachers. Many educators believe it would be better to have separate schools for boys and girls for a few years at this time, but such are probably impossible, at least as far as most country schools are concerned. Interest is shown in aesthetics, beauty in nature, music, art, dramatic expression, and literature. Love of truth, sentimentality, love, altruism, morals and religion are topics that claim attention. It is the age of reasoning, and the student should be allowed to develop his originality and individuality.

The teaching of religion is a problem that should be carefully considered and its solution would not be difficult. Churches could give religious instruction independent of school and outside of school hours. Capable teachers might be employed and school credit given for methodical and substantial work. In the mean time moral instruction should be given incidentally or from a prescribed course, and selections from the Bible. Some of the Psalms and Old Testament narratives may be taught for their literary and moral value.

A topic discussed with a great deal of interest at the last meeting of the National Education Association was that of sex hygiene. There is no doubt that one of the gravest mistakes that parents have made in the past is the shrouding in mystery of all questions pertaining to sex. It is the most natural thing in the world for the child at an early age to want to know about some of the mysteries of life. The child who has been put off with the explanation that the stork has visited the home will soon realize that he has been deceived, and the parents have lost the very thing so much needed to safeguard his early life against evil doing—his confidence. Any parent must know that children are going to learn the truth somewhere, and yet most parents have been absolutely indifferent toward this matter. As a consequence children often discuss subjects pertaining to sex, to their own detriment. It is the exception not to find on the outbuildings of school premises manifestations of unclean minds. The teacher has no more difficult matter with which to deal, and yet what assistance does she get from the homes? Twentieth century enlightenment should speedily eliminate the medieval notion that sex and shame go together. There is nothing more beautiful for the young child to hear than the life history of some of the lower animals first, as the frog, chickens, kittens, or other animals with which he is familiar, and finally the child himself—told as they are, and not mis-stated on account of false modesty. It cannot be stated too emphatically that no parents have done their duty to their children, who have not enlightened them on these truths of life before they have found them out elsewhere, so that they still have their confidence, which is the key to the situation. It will then be an easy matter for the school to do its part in the teaching of sex hygiene.

CHAPTER III

HYGIENE AND HEALTH

It was stated in the last chapter that good health is one of the first requisites in education, because mental growth is dependent upon physical development. The teaching of systematic hygiene is now compulsory in most states, but many teachers must surely stretch their consciences when they sign the report that the requirement has been met. Perhaps the reason such poor instruction has been given in the schools may be found in the fact that there has been so little good material available in texts or supplementary reading, and the teacher is not qualified without it. During the last few years better books on hygiene have appeared, so that excuses no longer exist for not teaching the subject.

Little anatomy and physiology should be taught in the elementary schools, but there should be a regular period for health talks and hygiene. If there is no other time available in a crowded program, part of the opening exercises or general period may be used. It is the purpose of this chapter to point out some of the unhygienic conditions found in the home and schoolroom that should receive the attention of those in charge.

Statistics show that over six hundred thousand children under one year of age die annually in the United States, largely from preventable diseases. This is an appalling statement, and shows conclusively the necessity of instruction for those who will be responsible for the coming generations. The infant has about the same chance of living through the year as a person eighty years old. This is largely due to improper feeding and the ignorance and

carelessness of mothers who could nurse their own babies, but who refuse to do so.

There is a mistaken notion that most young persons are subject to the ills of childhood, such as measles, chicken pox, whooping cough, scarlet fever, etc., not to mention such common things as toothache and earache. Some parents even go so far as to take their children where they will be exposed, so they will be sure to have all the contagious diseases. This idea is absurd. Nature never intended children to suffer with any of these diseases. They are usually the result of carelessness or lack of knowledge of some of the common principles of hygiene. "An ounce of prevention is worth a pound of cure" is really beginning to be believed, and we are willing to pay the physician for keeping us well rather than for curing us after we are sick.

Water, milk and flies are the most common causes of infection. Nearly everybody knows that water will become polluted if the well is too near the barnyard or outhouses, and yet very often little attention is paid to these conditions in locating the well. Barns are seldom as sanitary and well ventilated as they should be, but we all know that tuberculosis is the greatest scourge the world has to-day and that it is very often contracted by using the milk from infected animals. Some dairymen even refuse to have their cattle tested free of charge, lest this disease may be discovered and they may have to stand part of the loss of the animals.

Many states have now banished the common drinking cup in public places, and still we find much carelessness in the homes, and sometimes even in the schools. Inexpensive fountains attached to cooling jars may now be obtained and should be in every home and school where there is not something better. So much has been said and written

about flies as disease carriers that "swat the fly" has become a household phrase. There is still, however, much room for improvement in sanitary matters. Barnyard manure, garbage, and slops thrown out in the back yard are all breeding places and harbors for flies. Outhouses are usually pestilential places. Buildings may be well screened, but flies will get in, if allowed to breed on the premises.

In most homes and in some schoolhouses there is no system of ventilation. Great care must, therefore, be taken or the air will become impure. A very simple test for foul air is to make a little lime water by pouring water over some unslacked lime and allowing it to stand until the liquid is clear. Put a few spoonfuls of this liquid into a bottle or fruit jar and allow it to stand in the room where the air is to be tested. It should stand for two or three hours, or, if preferable, over night. Then shake it up. If a white precipitate is formed, the air contains too much carbon dioxide and is unfit to breathe. If the jar is taken from one room to another, it should be filled with water, emptied, and allowed to fill with air from the room in which the air is to be tested. Otherwise, the air in the jar, carried from the other room, would be used.

Sleeping in rooms with the windows open soon becomes a habit, and should be the rule throughout the year. There is a popular belief that "night air" is not good to breathe. Some one has said that the only night air not fit to breathe is last night's. Open up the windows not so much to let fresh air in as to let the foul air out. Young children should be given a nap in the open during the whole year. Even in the coldest weather there is nothing to fear, if they are well covered. Children have come in from a sleep in twenty degrees below zero weather, warm, rosy cheeked, and refreshed from the pure air. More importance must be

attached to fresh air in cold weather, because the house is generally poorly ventilated. Colds are not caught in pure air, no matter how cold it is. A cold, misnamed and more logically called a "stuffle," is caused by bacteria that thrive in foul, stuffy air. Because colds are so common, they are looked upon lightly and often neglected. We forget that they may pave the way for pneumonia, tuberculosis and other serious diseases. One of our leading authorities on hygiene believes the time will come when persons with colds will be segregated or quarantined the same as those afflicted with other highly infectious diseases.

The care of the teeth has been sadly neglected in both home and school. Probably seventy-five per cent of the children in the grades suffer from an unhygienic condition of the mouth, and yet many of them receive little or no attention. Dr. Ernest Hoag, an authority on school hygiene, has determined that about forty per cent of the children in the grades have from five to ten decayed teeth. The effects of such a condition upon both physical and mental development are beginning to be realized. If the schools taught nothing but mouth hygiene, and taught it effectively, it would be much better than the present physiology and the half-hearted way in which it is taught in most schools. If the baby teeth are allowed to decay, the mouth will become diseased and the permanent teeth cannot be good. The child should be taught to use a brush early so that the habit will be formed before the second teeth appear. Military authorities and insurance companies recognize the value of good teeth.

Dr. Harvey W. Wiley says, "Unhealthy mouths, decaying teeth, and neglected gums are doing far greater damage to the people of this country than smallpox."

Many homes and almost all schoolrooms have children affected with adenoids, but until recently little attention has been given to them. Even where the teacher has been wide awake and called the attention of parents to some of these conditions, they have been indifferent or even offended. The symptoms of adenoids are so plain, the removal so simple, and the effects upon the child so marked, that those who are responsible for its welfare cannot afford to be negligent. Mouth breathing, sore throat, earache, and prominent front teeth are pretty sure signs. These symptoms are caused by the soft, spongy growth in the back of the throat, that obstructs the air as it passes through the nose to the lungs. Naturally, the child will use the only other avenue he has to get air, and he becomes a "mouth breather." In some cases the throat becomes so clogged that even mouth breathing does not furnish enough oxygen, as many aenemic children show. The warm, spongy substances are excellent incubators for disease germs. Thus the throat often becomes sore, and the tonsils diseased. Because the mouth is open so much, the roof grows high and narrow, and the front teeth, crowded, become crooked and elongated. I have seen many school children, having had adenoids and tonsils removed on Saturday, back in school Monday morning. There was a marked change in their attitude toward school work within a few weeks. Sometimes this change is not so apparent at first, but it is always more or less permanent. In advanced cases the physical deformities may never entirely disappear. Most of the restlessness in home and school can be traced to physical defects discussed in this chapter. That is why parents and teachers should not only be familiar with the facts, but enthusiastic enough to act after these are known. Many valuable books on hygiene are now available for those who are interested in them.

One in every four or five children in school is affected with some kind of eye trouble. Sometimes serious cases go unnoticed by parent and teacher. A case in my own experience was a little girl sitting in the back of a school-room, whom I noticed straining her eyes in attempting to read something on the blackboard. Superficial examination with the vision chart showed that she was practically blind in one eye, and the vision in the other was very defective. The teacher had worked with the child for months, and even the parent did not know there was anything wrong with her eyesight. Still worse: nothing was done after the facts were known. The penalty will probably be blindness for life.

Another case was that of a boy who became so nearsighted that he had to hold his book within two or three inches of his eyes in order to read. Finally, specialists were consulted, and two or three operations were performed, but with only temporary relief. He was doomed to total blindness. He had been neglected so long that cataracts had formed in both eyes. It was with difficulty that he was kept from reading library books, even in this serious state. He was of Polish descent and, with his usual stoicism remarked to me one day that he must finish "Thaddeus of Warsaw" while he could see. Such instances are all the more pathetic when we remember that in most cases the defects could be remedied, if treated in time. The most common eye defects found in the schoolroom are nearsightedness, farsightedness, and astigmatism. The first two are caused by defects in the shape of the eyeball. When the eyeball is too long, the image is formed in front of the retina and the person is said to be nearsighted. When it is too short, the image is formed back of the retina, and farsightedness is the result. Astigmatism is caused by a defective cornea or lens of the eye. While these defects can be determined in a

general way by the teacher, a specialist should always be consulted. These troubles can be remedied by using glasses properly adjusted. Most of the headaches of the school-room are caused by eye troubles.

Inflamed, sore eyes are caused by infection, which, unless they receive proper care, may cause serious trouble. In many homes the common towel is as prevalent as the common dipper or drinking cup. It is usually the cause of the spreading of sore eyes to others. As a preventive the paper towel can be used cheaply and effectively.

Earache is common among children and is often misunderstood. Get rid of defective teeth, adenoids and other throat trouble, and the earache will take care of itself. It is nearly always caused by infection from these sources. Whenever the ear "runs," there is partial deafness, because the drum is punctured and should be cared for at once. When the causes of earache are removed, nature will usually heal the drum of a young child, if the rupture is not too large. Earache is an inflammation, and while hot applications are often used to relieve it temporarily, they sometimes make it worse. Cold water put in the ear, or cold applications, will often give the desired relief. Drugs are dangerous and should never be used in the ears, unless prescribed by a physician.

The cigarette habit surely should be mentioned in a discussion of hygiene and health. This is a most serious problem. While alcoholism is decreasing each year in the nation, it would seem that the tobacco habit is increasing. The effects of tobacco are probably just as injurious to the growing child as alcohol, and any experienced teacher can pick out the cigarette "fiend," without even looking at his yellow finger nails, by his dulled sensibilities and lack of interest in school work. When parents and adults in general

fully realize the economic loss to society, not to mention the moral side of the question, public sentiment will probably assist teachers in enforcing laws intended to protect minors. In the meantime, the teacher can hardly do more than to show the evils as effectively as possible, and enlist the aid of parents. Of course those teachers and schoolmen who are themselves users of the weed, even though it be only to the extent of the "social cigar," will find the situation somewhat embarrassing and ridiculous.

At the beginning of the chapter it was stated that improper food was the cause of a large percentage of the mortality among children. Those who survive are often weakened by uninformed mothers. Investigations conducted in our own schools determined that over ninety per cent of the students above the first grade drank coffee once or more daily. About half in the first grade used it as often. One authority says that a cup of tea or coffee is just as injurious to the young boy or girl as a glass of beer. How many parents there are who would not think of letting their children drink beer, and yet they give them other injurious drinks. A child in one of the intermediate grades became so nervous that he had to withdraw from school. He could neither sit still nor hold a pencil without shaking it, and was in a pitiable condition. This same child usually drank coffee three times a day, and ate all manner of unfit things at meal times and between meals. The cause of his nervousness was not hard to find, but it did not seem to bother his parents.

It was also found that many children were getting anything but balanced diets. Some ate little or no breakfast besides the coffee. Many had eaten only starchy foods, and where they were repeated at noon, and sometimes at night, there were sour stomachs. Sweets and pickles were

very often eaten too lavishly, while bread and milk and other old fashioned, but wholesome, dishes for children were conspicuous by their absence. Verily the present generation of mothers needs instruction in sanitation and dietetics. The teacher must help.

For those who have to carry lunches to school it is all the more necessary that the other two meals should be suitable to their needs. Some of these lunches were found to be entirely inadequate. Some consisted of only bread and syrup, not even butter on the bread. And this was not due to poverty in the home, but to lack of judgment. It would seem that the warm dishes prepared by the students under the direction of the teacher would meet universal approval, as nearly all country children have to eat cold lunches, but there is often objection. Teachers have had to be very tactful in serving them. Whether the opposition comes from a supposed reflection on the cooking at home or from an imagined extra cost, or for some other reason, has not yet been determined. As soon as the benefits are more fully realized, and teachers are better prepared to undertake this work, the hot lunch will undoubtedly become an established custom. It will be discussed under another chapter.

The reader should not become pessimistic because the conditions enumerated here are likely to confront the teacher. They may be bad enough yet, but they are growing better. The average community is slow to appreciate the necessity of medical inspection, but as soon as public sentiment will permit, it will be given in all the public schools. In the meantime, what can the teacher do to help? Some things have already been suggested.

As soon as possible after the opening of school, the teacher should test the eyes of all the students. She may do so by using a vision chart usually furnished free by the

state department of education. Directions are given on the chart and should be carefully followed. Test each eye separately, and notify the parents of any cases of defective vision. Place the students so affected so that they will be at the best advantage possible as to light, nearness to black-board, etc. The ears may be tested by blindfolding the pupils and letting them listen to the ticking of a watch, first with one ear and then with the other. An ordinary watch should be heard at least three feet. Let the pupil answer when he hears or when he does not hear, and be sure that he does not imagine his answer. The teeth can easily be examined without offense to pupil or parent. Start a tooth brush club in the school and keep a record, giving each one who brushed his teeth before starting to school a star or some other recognition. The effect is sometimes marvelous. Some schools also have a bedtime club, and those who go to bed before a certain hour get a star. Parents have told me how very much interested their children have become, stating that those who had not cared how late they stayed up would complain that they would lose the star, if they were not in bed on time.

Teachers should become familiar with the symptoms of the common infectious and contagious diseases, so that suspicious cases may be isolated before the whole room becomes exposed. It is now pretty generally agreed that it is very poor policy to close the school in case of an outbreak of disease, as the medical authorities can control it much better with children in school than scattered all over the community. Children do not stay at home when the school is closed. They are likely to mingle with their neighbors more than when going to school.

Finally, it should go without saying that the teacher herself should put all her theories of hygiene into practice.

CHAPTER IV

PLAY AND THE SCHOOL PLAYGROUND

Play should be of much more interest to parents and teachers than it is at present. During the last fifteen years leading educators in many countries have been making a scientific study of play and its relation to the development of the child. Long ago Spencer, Hegel, Pestalozzi and Froebel had pointed out the value of play in education. Much of this early discussion was theoretical, however, and only recently its true value is being recognized. Even yet systematized play under trained supervisors is confined almost entirely to large centers, and is financed by the municipalities, the Young Men's Christian Association and other organizations.

Play has been regarded as merely something to occupy the spare time of small children, but entirely unnecessary, or even out of place, for children old enough to work. That thousands of American children have been cheated out of



Figure 1. Maypole dance, Lewiston, Minn.

their birthrights, and became prematurely old, is evident from the existing child labor laws. They are of interest to the sociologist. The educator sees a deeper meaning in play. Play has long been recognized as a necessary activity for the surplus energy stored up in the nerve cells. G. Stanley Hall, Dr. Gullick, and others who have made a serious study of this subject, find in play a manifestation of those traits of the human race that have been handed down from generation to generation. Hence, the absolute necessity of play in the proper development of the child. Johnson, in his admirable work, "Education by Plays and Games," says: "I would not claim too much, but I cannot believe that there can be any education in the true sense of the word that does not deeply involve the emotions and the will, that does not take root in the inheritances that have come down from the motor habits of the race; and as these motor habits, endeavoring to persist in the present, are involved in play, we find there the surest and nearest approach to a true education of the child. Just as the physician in his search for a cure for consumption has circumscribed the earth and finally come back to the thing in all the world the simplest and nearest, the first demand of the child upon entrance into the world,—fresh air,—so we in our search for the best means of educating our children are coming back to that which was the first expression of his awakening soul, his play."

That play is natural and instinctive is evident to anyone who has observed children. As soon as the child is old enough to notice its environment, at the age of a few months, play begins. At first it may be the fingers that hold the attention. A little later a rattle and colored ball are appreciated. In the second chapter we considered three periods of the development of the child. Play may be



Figure 2. Supervision on the playground.

classified for those same periods, and games selected that will be suitable for each. There are many games suitable for both sexes. Others should be selected, however, that will be especially adapted to each sex. The season of the year should be kept in mind in planning games for children.

That systematic play should be a part of early home training is certain. The ancient Greeks gave this training and developed a race that have been unsurpassed in physical perfection and beauty. It would be best if every home had a room for children's play, but this provision is probably impossible in many homes. The next best plan is to have a tent or play house in the yard. The materials may be very simple and homemade. Every yard should have a sand bin about three by six feet and filled with clean sand from the lake shore. If lake sand is not obtainable, subsoil will do, but the gravel should be screened out. A sand pile containing a load or two of sand should be available. Some tin cans or pails and large tin spoons for shovels will be all that is needed. The educational value of the sand pile and bin for young children can hardly be overestimated.

Other simple apparatus for the home yard is a "teeter," or see-saw, a low swing, short homemade slide, indoor baseball, croquet, horseshoes or quoits, and tether-ball. It

should go without saying that the yard and lawn should be made as attractive as possible. A hedge instead of a fence, green lawn, ornamental shrubbery, and some flowers, with very little expense, and some labor that will be profitable for every member of the family, will bring the desired results. The reason these decorations are not found in almost every home yard is certainly not due to expense. It is usually lack of interest. Parents who complain that the children always want to play at the neighbors should consider ways and means for making their own yards more attractive.



Figure 3. A modern "teeter."

Children should be encouraged to have pets, especially poultry or some other profitable animals. They will also take great interest in vegetable and flower gardens, if they are given the seeds and the proceeds from them. Parents can well afford to pay children the market price for poultry and vegetables to get them interested in something practical, and in simple business transactions. This work is so closely connected with play that it is proper to discuss it here. There is so much of the play element in work and the work element in play for young people that it is sometimes difficult to distinguish between work and play.



Figure 4. Work and play.

Play is necessary in the home and it is equally important at school. Not only on the grounds, but in the primary division at least, it should be utilized to a much greater extent in the actual classroom work. Some of the dreadful ideas young children get of school before they become accustomed to the work of the school room would not materialize, if school work were made more natural for them.

I contemplated my first day in school with terror, as I had been threatened with having my ears amputated. I was, therefore, forced to school screaming. When the "master" appeared, I told him with emphasis that I would not go inside. He merely smiled, but somehow that smile caught me unawares, and I was soon inside. At recess, however, I took a position with my back to the school-house, so that I could guard my ears. This teacher, of whom I felt in terror, to my utter astonishment, handed me a whistle, and, taking one himself, spent a part of the recess in showing me how to use it. There was not a day from that morning till now that I would not have fought for that teacher, if necessary.

His successor was fully as tactful. Recess and noontime would find him on the play grounds leading the games. There were action games for the little folks, in which they would get acquainted and feel free and natural; crack the whip, duck-on-the-rock and similar games for the next group; while two-old-cat, cricket, and association football, where all could take part, were the delights of the oldest students. These teachers had not only the respect of that large school of sixty pupils, but their admiration and love. I am sure the playground activities had a great deal to do with their success. As soon as the bell rang, play ceased and work began. And how we did work!

For some reason the average teacher does not like to mingle with the students on the playground. Some teachers seem afraid they will lose their dignity; others fear they will lose the control of their pupils; while others are not in sympathy with the games. The first two classes are surely mistaken, as experience would soon teach them, if they are of the right kind, and the last class should never enter the school-room as teachers. I believe most heartily in supervised play, not the rigid, reserved kind that takes away all spontaneity; but the resourceful, sympathetic supervision that makes the recess worth while, so that the child wants to play because the teacher is interested enough to play with him. Observation shows that where interest lags in the playground sports, the fault is almost entirely with the teacher. She should realize that the teacher is responsible for the children from the time they leave home in the morning until they return at night, and that more mischief is often done in fifteen minutes recess, that might have been avoided if she had been "on the job" directing their play, than she can undo inside the school in a week. It is the duty of every teacher to plan her playground program as carefully as any other

part of the work for the day. Better by far have no recess than to turn the students out to do just as they please. Those who have not tried it, should investigate the recess and noon periods and find out what is being done on the grounds. If the reader is not satisfied with the result obtained at recess and noon, he should get one or more of the books mentioned in the reference list and become enthusiastic over the playground.

Curtis, in discussing organized play in the school yard says: "Some teachers seem to feel that it is beneath their dignity to play with the children, and one often hears the old saw, 'Familiarity breeds contempt.' Whenever I hear this quotation in this connection, I always feel like completing it by its implied condition. Familiarity reveals you as you really are. It leads to contempt, if you are contemptible. If familiarity makes you contemptible to your father and mother, your brothers and sisters, it will make you contemptible to the children as well; but if, on the other hand, you wish to be a real friend to the children and have a lasting influence over them, there is no other way. The person who sits upon a platform of assumed dignity and answers our questions by 'yes' or 'no' and gives us sage advice about our conduct has very little influence upon us either in school or outside of it. Everywhere the testimony of the teachers who are sympathetically playing with their children is that this play solves the question of discipline."

What has been said will suffice to show that play is as essential in the country as in the city schools. It should not stop at the playgrounds of the school. A quarter holiday in which the entire school is taken on an excursion should be a frequent thing especially in the spring and fall. This recreation will not merely be an outing. There are so many topics in nature study that can best be studied at such times,

that the teacher will not find it difficult for the students to get both profit and pleasure out of such trips, if she is awake to the opportunity. Many schools now plan something special for Halloween, Thanksgiving day, Christmas time, and other occasions. Children who plan and take part in a social function on Halloween will not usually participate in the foolish pranks sometimes played at this time.

Some teachers feel that it is impossible to do anything without expensive apparatus, such as that found in the city grounds. This is a mistaken notion. Most of the playground materials for the rural schools can be homemade. Curtis, in his book on "Play and Recreation" gives the experience of forty-seven rural schools in Winnebago county, Illinois, that had no money for this purpose; so they held socials that raised the sum of \$1,638.27 or about \$35 a school. Half of this amount would make a good start for any school, with the enthusiastic aid of pupils and teachers. The following apparatus and games, not all necessary for any one ground, will be suggestive.

The sand bin is one of the first things that should be constructed. If more than one is made, about four by six feet would be a convenient size. It should be about twice this size, if there is but one. Even if the district is willing to furnish it, this is a piece of apparatus that the children themselves should make. A few ten or twelve inch planks and some nails or stakes will be all that is necessary. A seat around the edge will make it better, but is not imperative. Some of the older students will usually be willing to haul the sand after school or on a Saturday. All will not need to cost more than the price of the planks, and possibly four persons can bring one each for the four sides. The bins should be made in some shady corner of the grounds not used by the larger students. They need no bottom, and will soon dry out after rain.

Now some will actually wonder what good a sand bin is, and likely most of the parents will be among the first. But any good primary teacher will know its value. Sand bins are for the little folk of the school. The sand table of the lower grade rooms will indicate some of the uses. Here the history stories will be reproduced, geographical formations worked out, and the imagination developed; but, above all, the children will be playing, and in their natural element.

A smooth, straight track for running races should be made along one side of the school grounds. It should be as long as possible up to one hundred feet, and conveniently marked off for shorter races. A jumping pit can easily be made at one end by digging out the earth and putting in a few inches of sand or sawdust mixed with earth, to deaden the jar. Running and jumping are healthful exercises and children of all ages enjoy them.

Swings may be constructed easily, if desirable, but it is hardly possible to have enough for all who would use them, and they are better for the home yard than for the school playground. They should be low, safely constructed, and out of the way of children playing other games.

A giant stride is better than the swing, as more can play and there is little danger of one's getting hurt. Even this can be homemade. For the rotary top a small wagon wheel is placed at the top of a stout pole about fifteen feet high. A strong rope is attached for each child and should hang so low as to be easily reached. When all are ready to start, the rotary motion is begun by the children's hanging on to the ropes and running around the pole. Centrifugal force will soon take them off their feet part of the time, and they can either swing out or jump along as they desire. The giant stride is always a popular piece of playground apparatus.

Tether-ball is one of the best games that can be played on the school ground, but it will accommodate only two persons, or at most four at one time. Two or three poles could be erected, about three inches in diameter and twelve or fourteen feet high. A mark of some kind is made about six feet up on the pole above which the ball is to be wound, one side trying to wind it to the right and the other side to the left. A circle six feet in diameter is drawn around the pole, and a straight line through the pole divides the players. A tennis ball inside a netting and attached to a string is fastened to the top of the pole. The server takes the ball in one hand and strikes it with a racket, (a smooth, flat board will do) and tries to wind it around the pole. The side, or person, winding it up first wins the game. Tether-ball is excellent exercise, and is interesting, if played right.

Volley ball should be a popular game, as the entire school can take part. Six or eight on a side is the usual number, however. The game is played with a large inflated ball similar to a basket ball. The ball is served by one of the players from the back line of the court, and an attempt is made to bat (with the hand) the ball over the net into the opponent's court before he can strike it back with his hand. The ball is batted back and forth until one side misses and it touches the ground. Those who fail to return it yield a point to the other side. The player missing the ball is the next server. Two twenty-minute halves may be played as in basket ball, and the side scoring the largest number of points wins the game. Volley ball is a new game, but is very popular, not only in the school, but with business men in their clubs. Physical directors recognize this game as one of the very best that serve the purpose of corrective gymnastics. It can be played indoors or out in the open, requires little space, and very inexpensive equipment. When

the game can be played out of doors, the courts should be twenty-five by fifty feet each. The net should be at least seven feet high and attached to posts set two feet outside the side lines.

Indoor baseball is appropriate for any home or school playground. As the name indicates, it is a popular indoor game during the winter months. The rules are similar to ordinary baseball, except that the pitcher must deliver the ball under-handed instead of overhanded as in baseball. The runner on the base cannot leave until the ball has passed over the home plate or has been hit by the batter. The game has a decided advantage over baseball, in that younger children can play it, as well as the girls and women teachers of the schools. The ordinary rural school seldom has older boys enough to play baseball. Another advantage is in the small space required for "playground ball," as indoor baseball is often called. The bases are usually only thirty-five feet apart. The pitcher also stands thirty-five feet from the home plate. A large, soft ball from twelve to seventeen inches in circumference is used, and a small club about half the size of an ordinary ball bat completes the equipment. The small-sized ball is better for the older persons, and the large ball for younger children.

Tennis is pre-eminently a country game, as it requires plenty of room and may be played by two or four persons. The same net used for volley ball can be utilized for tennis. It should be stretched across the middle of the court, three and one half feet high at the posts and three feet in the center. Small, two ounce balls and thirteen or fourteen ounce rackets are used. The court should be seventy-eight by thirty-six feet where there is room, but smaller space can be used. If the sod is removed and the ground leveled, a better game can be played. The court is marked off with

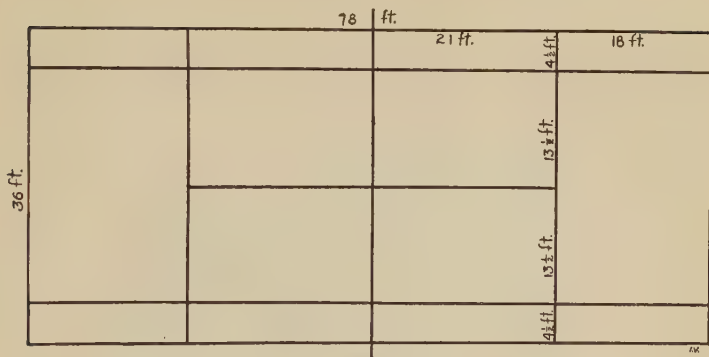


Figure 5. Plan of a double tennis court.

lime. The player who first delivers the ball is the server. His opponent is the striker-out. After each game the players change sides. The server stands with one foot outside of the base line, strikes the ball with the racket, and attempts to deliver it on his opponents court, which is diagonally opposite his own. If he fails in the first attempt, he uses the other ball. In case the second is a failure, his opponent counts the point. When the ball is delivered properly, and the opponent fails to return it, the server scores fifteen. The second score is called thirty, the third, forty, and the fourth, game. In case each side wins forty, the score is called "deuce." The winner of the next stroke scores an "advantage," and, in case he wins the next score also, he wins the game. If he loses, his score goes back to "deuce." In other words, a player must win two successive strokes after scoring "deuce," in order to win the game. The side first winning six games wins a set. A complete set of rules showing also how to lay out grounds can be obtained for ten cents.

The horizontal bar is a simple piece of apparatus that will be used a great deal in the home or school yard. Two

or three bars should be placed in posts that are five or six feet apart. There should be a few inches difference in the height of the bars. They may be made of old fork handles or a piece of gas pipe. Sand, or some other soft material, should be placed under the bars.

A **coaster slide** may be home-made, if care is taken that the boards are smooth. Objection is sometimes made to the slide by mothers who have the clothes

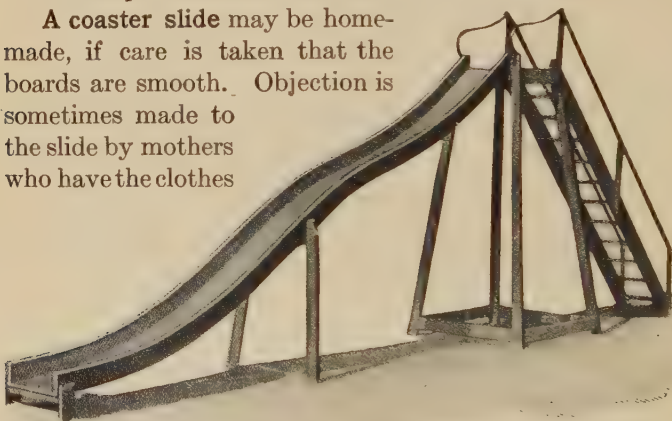


Figure 6. A coaster slide. Similar slides may be made for the home and school grounds.

to mend. It is doubtful, however, if a smooth surface like this is as hard on clothes as the seats of the desks in the schoolroom. Small children especially enjoy this piece of apparatus.

Hurdles are merely the old-fashioned wooden "horses" made a convenient height for jumping and placed at intervals of a few yards or rods, as desired. The grounds, or even the road, will be suitable, if there is no special place for running such races. This is a good form of exercise, and will please young and older children alike.

Football of the modern type, or rugby as it is called, is too strenuous a game for rural schools or even for village

schools, where there are but few large boys. A much better form of the game is the association football, or soccer. This is an open play game, not dangerous nor too severe, and yet requires great skill on the part of the individual player. This game is true to name, as the large, round ball is really kicked with the foot, in contrast to so much hand play in rugby. It is also a more interesting game for spectators to watch than the other form of football. In many rural schools of the East it is one of the favorite games. The ball costs from three to five dollars, and may be obtained from dealers of standard athletic goods. Complete rules of the game are furnished.

Basket ball has become one of the common games in villages and larger places, but it has not yet come into its own in the country. It is indeed seldom one sees a basket ball court on a rural school playground. The rings may be made at any blacksmith's and the students can fasten them to the posts. About all the expense is the cost of the ball. The same ball used for volley ball, or even association foot ball, may be used for this game. Basket ball is suitable for girls as well as boys, and is very fine exercise, if not played too strenuously. Further directions are not necessary here, as a rule book should be obtained of an athletic dealer.

Croquet is one of the best games for the home yard, and is not out of place on the school grounds. In fact, it is an excellent game for school children, if a part of the yard can be set aside during the fall and spring for that purpose. A set with directions for playing can be obtained for about one dollar and a half.

Horseshoes, or quoits, is a very old fashioned game, but one that is always interesting. Children and grey haired grandfathers enjoy it alike. Two wooden pegs, or railroad "spikes," if they can be obtained, are set about thirty-five

feet apart, so that they project out of the ground about five or six inches. Either two or four persons may play. If four play, two opponents remain at each stake. If only two play, it is necessary for them to walk to the other peg each time after pitching the quoits. The game is played with oval disks, or quoits, sometimes, but more often with ordinary horseshoes. When the shoes are used, the corks should be reasonably sharp. Each player pitches two shoes, the side winning the last "throw" pitching first. The object is to pitch the shoes as near to the stake as possible. The player having his horseshoes nearest the peg wins the "throw," and scores two points, if both shoes are nearer than his opponent's, but only one point, if only one shoe is closer. When a shoe is thrown so that it rests against the peg, it scores two points for the player, unless it is knocked down by another player. A shoe thrown over the peg counts a "ringer" and scores three points, unless dislodged by a succeeding shoe. The player, or side, if four are playing, that first scores eleven points wins the game. Six games constitute a "series," or set, as in tennis.

Enough games suitable for older children have been given from which to make selection. Interest may be further stimulated in the work of the playground by holding interscholastic athletic contests as frequently as may be deemed advisable. Such contests would not be difficult to arrange between nearby schools, and should be conducive to closer co-operation among the schools, and very valuable from a social standpoint.

Another form of recreation which should be the birth-right of every boy and girl is camping. How many boys and girls ever get a real vacation? I fear altogether too few. The joys of a week or two in camp—the hunting, fishing, bathing, or strolling in the woods in search of flowers,

are not soon to be forgotten. It may be a sacrifice to let the children go during the busy time on the farm or in the home, but it is worth while. It is a part of an education that should not be neglected. The time spent on a vacation of this sort will be repaid a hundred fold in renewed physical and mental vigor. The work of the Boy Scouts and Camp Fire Girls in this respect is worthy of the support of all parents and teachers.

It would not be proper to close a chapter on play without suggesting something suitable for the activities of the younger children on the playground. The following "games that every child should know" taken from the standard authors on the subject of play may be helpful: Little Children, Cat and Mouse, Jacob and Rachel, Slap Jack, Whip Tag, Hide and Seek, Puss in the Corner, The Miller, Farmer in the Dell, Bean Bag, London Bridge, The Needle's Eye, One Old Cat, Witch in the Jar, Tag, Lane Goose, Run Sheep Run and Follow the Leader.

For those a little older this list is appropriate: School Master, Blind Man's Buff, Trades, Drop the Handkerchief, Railroad Game, Duck-on-the-Rock, Thumbs Up, Three Deep, Button Button, Last Couple Out, Bull in the Ring, Leap Frog, Fox and Geese, Pom Pom Pull Away, Prisoner's Base, Captain Ball, Dodge Ball, Catch Ball and Battle Ball. The last four require a basket ball or volley ball.

Singing games have a peculiar fascination for many children. A few are here suggested: London Bridge, Green Grass, The Farmer in the Dell, In and Out the Window, The Shoemaker, I Put My Right Hand In, and The Miller.

Space will not permit a discussion of these games, but many of them will be found in "Education by Plays and Games" already referred to.

CHAPTER V

TRAINING RURAL TEACHERS

The physician, before he can practise medicine must spend four years in high school, from two to four years in a general college course and from two to four years more in technical training for his profession. This makes an average of about ten years above the grades in special preparation, in addition to which he must pass an examination by the state medical board. Likewise, the attorney must spend several years in special training and pass the state board examination before he can be admitted to the bar. The same conditions obtain for many other professions. Until recently, however, the teacher could practice upon the mental activities of the rising generation, with altogether too little academic training, and no professional preparation. Even yet we hear expressions similar to this: "She surely knows enough to teach a country school." The average layman thinks the person who holds a college diploma should be capable of teaching any subject anywhere.

The evolution of professional training for teachers from the itinerant schoolmaster "boarding 'round" to the highly trained specialists of to-day is very interesting, but this change has not until recently affected the country schools. Not many years ago the county superintendent was the sole judge as to the qualifications of his teachers. And he still is in some states. He formulated the questions, gave the examinations, and marked the papers. If the candidate did not pass, the county superintendent had the power to issue a permit. While undoubtedly most officials were entirely conscientious in the discharge of their duties, the system was conducive to favoritism and sometimes even

dishonesty. At its best it was inefficient. Uniform examinations and state supervision was the next step. Then a permit by the county superintendent was restricted to one term. In other ways the standards have gradually been raised until many states now require some professional training in addition to the academic work. In Minnesota every teacher is now required to have at least one year of professional training for a first grade certificate.

City trained girls do not usually make good country schoolteachers, and this is perfectly natural. The environment of the country is so different from that of the city or even of the village. Furthermore, the entire course of study for the rural school is gradually but surely being revised to meet the needs of the community it serves. These needs are vastly different from those of the city. The United States Commissioner of Education, Dr. Claxton, in a recent address before a body of teachers, said, "All education to be educational and cultural must be vocational." This statement, applied to the rural schools, means that such subjects as agriculture and home economics must receive direct attention, and that the entire course must be industrialized. This does not necessarily mean that the teacher must do more work than she has been doing. She will teach the same number of hours, but it does mean that the education and training of the rural teachers must be vastly different from what it has been in the past.

The rural teacher of the future must not only be as well trained as the city teacher, but better. The city school system has its superintendent, supervisors, principals and special teachers to assist the teacher, not to mention engineers and janitors. The country teacher must be all of these officials and workmen combined. A knowledge of country life is the first requisite for the country teacher.

This knowledge should be gained at first hand. In other words, the teacher of the country should come from the country. To her natural qualifications, however, must be added academic, industrial and professional training.

The academic training should be broad and deep. "Surface" or "shallow" students are not the kind to make teaching their profession. Thoroughness must be the watch word. It is not sufficient to know the common branches well when they are taken in the upper grades. These subjects should all be reviewed in the high school with a special view to teaching them. Many teachers do not get good results in spelling, writing, music and drawing, because they, themselves, are not well grounded in them. These, as well as geography, arithmetic, history, civics, grammar, composition, and a general course in English classics, should be part of the high school academic work for teachers. It is probably not necessary to state that, in the future, no person should be allowed to teach in the rural schools who has not at least a full high school education. The special professional training should follow the high school course. Certificates should be issued only on diplomas from recognized professional courses, discontinuing the examination plan. Topics that should be required are elementary algebra, English classics, and composition during the four-year course, physiology and hygiene, general history, zoology, and botany, physics and chemistry. The sciences should all be greatly revised and industrialized. A half year each of physics and chemistry could be made much more practical than the present courses of one year. Foreign languages are cultural, but not essential. Culture is also found in manual training and agriculture and these subjects are of more immediate and practical value. Geometry is not necessary. Economics should be encouraged.

Industrial work is becoming more and more necessary to meet the demands. A brief course in weaving and basketry is no longer sufficient. Every prospective teacher should have at least a full year high school credit in domestic science, one in domestic art, and one in general agriculture. The domestic science must be broader than a course in plain cooking. Serving, laundering, home sanitation, nutrition, household management, including purchasing of materials and keeping accounts, are essentials. Every girl should learn to do good, plain sewing, not only hand, but machine work. One preparing to teach must know these things so well that one can use what is practicable for the rural school. While there may be some difference of opinion regarding how much of this should be taught, there is no doubt that darning, patching, and other very useful plain needle work can be done as well in a country school as in the grades of a village school, provided the teachers are equally well trained. Also the teacher who is independent and capable enough to make her own garments, will be more respected in the community than the one who cannot.

The agricultural work should include farm crops and the elements of animal husbandry, especially dairying.

A collection of weeds and weed seeds should be made and their eradication understood. The common grains and grasses, crop rotation, and farm accounts are topics to be carefully studied. The teacher should also acquire enough knowledge and skill in manual training to be able to direct the boys in simple exercises such as those suggested in this book. Drawings are not hard to read and interpret, if a little time is devoted to them. Most teachers find a fascination in doing this kind of industrial work.

The professional training will probably more largely determine the success of the teacher than either the aca-

demic or industrial. As already shown, it is absolutely essential. The standards should be gradually raised until at least one year of professional training should be given, offered only after graduation from high school. The work should cover practical child study, rural economics, methods in all the common branches, including the industrial subjects, school organization and management and practice teaching. It is sometimes stated that teachers will get more from observation than from actual teaching. This is a serious mistake. A little observation of the work of a strong teacher will assist a prospective one who may happen to know just what she is looking for. She will know this only by teaching experience. Learn to teach by teaching may sound much like learning to read by reading, but both are necessary to get results. I should have a student begin to teach the first day and continue at least one hour a day throughout the entire year. Student teaching is discussed more at length under the training department in high schools. Just where the professional training ought to be given is still an open question. The colleges of education, normal schools, county training schools, and normal departments in high schools are all available for this purpose.

The college of education in a university and the department of education in a college give opportunity to those who are fitting themselves for high school positions. Many of the courses have been and some still are too abstract and theoretical. A course in general psychology is perhaps a good foundation for teaching, but it is to be regarded as academic rather than professional. Practical child study learned at first hand in the classroom, will be of much more direct value to the teacher. Methods taught by teachers with long experiences in the high schools rather than by college professors; better knowledge of the high school subjects

to be taught after leaving college; a practical course in school organization, law, and management, and a little more common sense pedagogy are some of the urgent needs at present. Superintendents are likely to complain more about the mechanics of the schoolroom than any other one thing. Teachers make serious mistakes in the use of the school register, reports, filling out various necessary forms and sometimes in exceeding their authority with students. Vague notions of what constitutes good order and discipline in the schoolroom often result in failure before the end of the year. When questioned about these things the blame is nearly always laid on the course preparing them for teaching. "We never had anything like that in college" is a familiar statement to every superintendent. Teachers are influenced directly by the way they have been taught, and perhaps unconsciously imitate those who have influenced them most. Unfortunately this is not always conducive to good teaching. The great lecturers are not always good classroom instructors. A department of education needs both. From this criticism it might appear that these institutions are not worthy. Such an inference is incorrect. They do, however, need the same practical readjustment that is taking place in many of the other educational units, and happily many of those in charge are devising means for providing the necessary practical experience. Visits from representatives of colleges to secondary schools and questionnaires sent to school officials show that the authorities are abreast of the times. It may not be evident just what connection the college of education has with the preparation of rural school teachers. Unfortunately, but little at present. That it is destined to become more and more a factor in rural training, however, cannot be questioned. Consolidated schools and better smaller schools will demand teachers of high scholarship.

The agricultural colleges through their regular courses and summer sessions are meeting the need at present better than any other agency. That the professional side of this training needs strengthening cannot be denied. In Minnesota and other states a department of education in the college of agriculture is materially assisting in supplying the demand for professionally trained industrial teachers.



Figure 7. High school normal girls fitting themselves by actual field work.

The Winona (Minnesota) State Normal has established a modern rural school, the teacher for which will be furnished free of cost to the district, which will supply the building and all the equipment. The teacher is a member of the normal school faculty, and it is her mission to work out the very best rural school that can be made. Prospective teachers go there regularly to receive instruction.

The state normal schools have been the most effective agencies in supplying teachers. That they have failed to develop the country schools is not the fault of these institutions. The demand for grade teachers in cities and villages, due largely to a short tenure of office, has prevented rural schools from getting much direct benefit from the

normal schools. That this demand will not only continue, but increase, is to be expected. It is, therefore, logical to think that the normal schools be regarded the proper unit of the public school system to supply teachers for the graded schools. It is task enough. They specialize in this one line of work, admitting only high school graduates to their courses. Attendance at these schools usually necessitates being at a long distance from home, and should not be necessary for teachers of one-room rural schools. Those who qualify for consolidated schools could attend the special courses in agricultural colleges, as suggested above. Unnecessary duplication of equipment in different parts of the state would be avoided and all would benefit by the arrangement.

County training schools have been tried in both Wisconsin and Michigan and most of them have been successful. The chief objection to them would seem to be the extra expense of duplication of equipment without the desirable feature of keeping students in their home communities. One who has to go fifteen or twenty miles away, even though it may be in his own county, may as well go farther and attend one of the larger schools with better facilities. It can readily be seen that in the average country town there is no demand for a county school to teach academic work. This is amply offered in the local high school, and when given in the county institutions, it is not only an added expense, but draws from the enrollment of the high schools. If only professional work is to be offered in these schools, why not combine them with the high schools, making a special department for rural school training? This is precisely the question that was discussed and considered at length in Minnesota a few years ago, with the result that high school training departments were established.

The "Minnesota Plan" does away with the parallel

system and eliminates the objections to the county training schools. The regular students of the high school who intend to teach can receive their training in the home institution and usually teach somewhere in the home community. This plan is both convenient and fitting. The legislature appropriated \$750 aid to each high school offering a training course. Later this amount was raised to \$1,200, and a commission has recently recommended that it be further increased to \$2,500 annually and a two-year course offered instead of one year as at present. Students who enter this department are required by the state department to have at least one year of high school work. Many schools allow only high school seniors to take the course, and the standards are being raised, so that eventually only high school graduates may be admitted. A teacher of professional training and unusually successful experience in rural and other schools is placed in charge of the department. About half of the high schools in the state now have these departments, and it is possible for the others to secure them. A state inspector of training departments has been recently appointed.

High school training departments should be able to meet the needs of small rural schools of one and two teachers better than any of the other institutions named. The reasons for this are obvious in view of the discussion given above. The academic work should be done in the regular high school courses. This training should ultimately be made a two-year course, one year consisting of reviews and methods of the common branches, including industrial work; and the other, professional work and practice teaching. After several years of experience with training departments in two schools, with four different supervisors of these departments, I am firmly convinced that the teaching the students do is the most valuable part of the course. Various

plans for conducting the practice teaching have been tried in this state. Some departments have insisted that the "cadets" should observe the work of the regular teachers for a term or a semester before attempting to teach. Others have had them begin with small groups, after a few weeks of observation. Still others have had the students observe and teach in nearby rural schools, substituting for the regular teacher, as the occasion required. We have tried all of these plans. One year the training department had entire charge of our sixth grade, following a provision made by the former superintendent the year before. This was so successful, thanks to an energetic training supervisor, that not a complaint was heard from any of the parents. While practice teaching conducted in the ways suggested is much better than none, it is not the kind of training the prospective rural teacher needs. Observation in a grade of a village school cannot be directly applied to teaching except in a village school. It is true, that the general principles are the same, but the application, and more particularly the organization is very different. Young teachers are imitative, usually too much so, and the fact is that they do not adapt their grade methods to the rural school that must be conducted very differently. The plan of using a nearby rural school for practice teaching has been tried with success by some. While it affords an excellent means of supplementing the regular teaching, I do not believe it is practicable to attempt to conduct all of the teaching in this way. There are too many obstacles to interfere in the average community. Not more than one or two cadets could observe and teach in such a school in any one day. The others must still be provided for in some other way, or not teach until their turn came again. A means of transportation must be provided regularly and this would

necessitate a considerable expenditure during the year. The supervisor of the department could not observe the teaching, unless the other members of the class were left alone. These are a few of the objections to making a regular rural school the sole means of practice teaching. The most serious objection at the present time, moreover, is the inability to secure for these schools teachers who are competent to act as critics and give practical help to beginners, as must be done, if the work is to be effective.

The ungraded room is probably not a cure for all the pedagogical ills of training departments, but, in my experience, it has been by far the most practical means of conducting practice teaching. We have tried this in numerous ways. At first by taking students from several of the

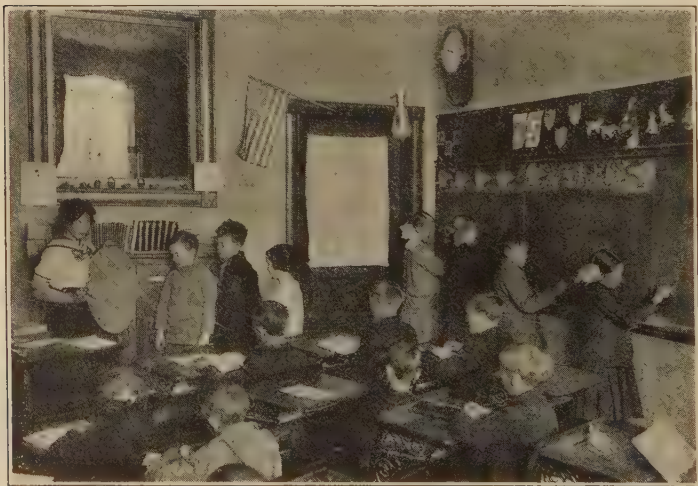


Figure 8. The "ungraded room," or rural school of a teachers' training department. The student teacher is using the "Division Plan" of organizing the school and the two classes of the Second Division arithmetic are reciting at the same time. See Chapter VIII.

grades and combining them in certain subjects in which they were weak. Then we tried half day sessions with the children from each of the grades. Finally, the ungraded room was kept running all day long, but the students were in this room only a month, or some other convenient unit. There are two good reasons why these methods were not successful. First, the ungraded room must not be used as a "catch-all" for backward students. To make it such is an injustice to pupils and student teacher alike. Second, as long as the responsibility is divided between the ungraded room and the grade teachers, no one is responsible. The regular teacher blames the student teacher if the child is behind grade, and the student teacher cannot follow an ungraded plan and have the child do exactly the same work as the others of his grade at the same time. In order to keep him up to grade she must get the lesson from the regular teacher each day and conduct a little graded school—the precise thing she should not do to prepare her to teach in a country school.

The remedy, then, is to conduct the ungraded room independently of the grades. Since we have been following this plan we have had no serious objections to meet. Parents have asked to have their children put into this room, but no requests have been made to have pupils taken out and put into the grades. When the room was organized, it was to take the place of the sixth grade referred to above, which did not give suitable training for rural schools. The children were selected from the other rooms of the schools, rather at random, only two things being considered. One was to have a representative room, that is, not all backward students nor all particularly bright ones,—just an average room. The other was that at least half must be country students actually living on farms. In this way two dozen chil-

dren were chosen from the first six grades of the school, thus making about an average rural school. These children not only remained in the ungraded room the entire year, but came back to this room the next year, excepting those who were promoted to the Junior High School. A new class of beginners was taken into the room at the first of the second year.

This plan is still in successful operation. The supervisor of the training department is responsible for the ungraded room. In fact, it is part of her department, with a door between the student teacher's room and the ungraded room. The cadets start to observe and teach in this room from the first day. They keep the daily register, prepare the lesson plans and make out the report cards the same as other teachers in the building. The room is not run as a graded school, but the course of study and the daily program suggested in Chapters VII and VIII of this book are followed. The head of the department is made responsible for the supervision of playgrounds at recess, and the cadets assist the regular teachers in the games suggested in Chapter IV. The industrial courses suggested in this book are in operation including the booklets in language work and the hot lunch plan. An attempt is made to carry out the entire course of study as it is outlined for rural schools.

The student teachers get at least an hour of teaching every day throughout the entire year. This is not all in the ungraded room. Groups from the regular grades are taken for lessons in reading, language, arithmetic and such subjects as can be well cared for in this manner. Sometimes an entire division is taken from a crowded room, thus relieving the regular teachers. At the close of each day the student teachers meet for "criticisms" and a general discussion of the work.

State certificates are issued to those who complete the

course in the training department, based on their academic and professional work. These certificates are good in any rural school in Minnesota. The students from our department have been located each year before graduation, so strong has been the demand for teachers with professional training. Most of them have been employed in our own associated rural districts. It should be understood that the departments are not large, the number of students varying from eight to twenty in the state as a whole.

The question of teachers' wages is a serious one. With the raising of the qualifications for teaching one sometimes wonders if it is worth while to make such preparations for the remuneration. Fortunately, increase of salary goes with the raising of standards and is likely to continue to do so. The average wages paid the graduates of the department mentioned above have been about fifty-five dollars a month the first year. This is better than the average grade teacher's wages for the first year of service, and most of them have made longer preparation. While wages are still far below what they should be, it is well for teachers to remember that the reason for the poor pay is, to a great extent, due to the fact that teaching is at best but a semi-profession. A teacher usually gets all she earns the first year—often more. The second year she is worth more, but just then she quits teaching. It is said that the average service is but two years. If teaching could be made a real profession, remuneration would be more adequate to the service rendered by those who made it a life work. Teachers of rural schools in Europe receive living wages, but we must adopt the European plan of employing men teachers for the country schools, and of having the same teacher in the community for ten, twenty-five or forty years, if we are to get the European wage scale. Our consolidated rural

school will help this matter, undoubtedly, as it will tend to enhance the position of the teacher.

Teachers' pensions are being agitated and granted. Some states have passed bills that are fairly satisfactory. The Minnesota legislature has just recently passed a bill allowing an annuity of \$350 after twenty years of service, and \$500 a year after twenty-five years. The funds are raised by a uniform levy among the teachers themselves, amounting to about \$500 during the first twenty years and by a special state tax for that purpose. Such a pension law would seem equitable. It would, in a way, compensate those who spent the best part of their lives in teaching for the low salaries received during this service. No soldier on the battle field ever served his country any more efficiently than the faithful, conscientious teacher who spends twenty-five years of her life in this service, and none is more deserving of a pension than she.

The teacher becomes automatically eligible to this retirement fund and must contribute annually a sum which increases from five to thirty dollars. In case of removal or death, half the amount paid is refunded. The last five years of service must have been in Minnesota. The act does not apply to cities of the first class or to the State University.

The course of study used in our teachers' training department is here appended for those who may be interested in it. The student elects this course at the beginning of the tenth or sophomore year in high school. A three-year junior high school course is preparatory to the senior courses. In the junior course English is required for three years, a modern language is elective, general industrial work, agriculture, manual training, domestic science, sewing, are required at least one year each, and civics, as well as all the common branches, receives proper attention.

TRAINING DEPARTMENT COURSE
TENTH YEAR

First Term

English
Ele. Algebra
or
Plane Geometry
Domestic Science
or
Manual Training
Zoology

Second Term

English
Ele. Algebra
or
Plane Geometry
Domestic Science
or
Manual Training
Zoology

Third Term

English
Ele. Algebra
or
Plane Geometry
Domestic Science
or
Manual Training
Botany
Agriculture

ELEVENTH YEAR

English
General History
Chemistry
or
Physics
Sewing

English
General History
Chemistry
or
Physics
Sewing

English
General History
Food Study
or
Household Physics
Sewing
Agriculture

TWELFTH YEAR

English
Arithmetic
Agriculture, Sewing
Manual Training
Civics
Teaching

English
Geography
History
Industrial Work
Teaching

Grammar
Music, Hygiene
School Management
Rural Sociology
Teaching

CHAPTER VI

SCHOOL MANAGEMENT

The character of the teacher's preparation will largely determine her success in the management of her school. In the last chapter there was given an outline of some of the requisites of a thorough training. Those who have not been fortunate enough to secure such training in school need not despair, if they will apply themselves. Every teacher should go to her school equipped with certain helps that are almost indispensable. There should be a few homemade charts for the first-year students in reading. Chart-board about twenty-two by twenty-eight can be easily obtained. Pictures from magazines, and a printing press will complete the necessities for chart-making. If it is known what book will be used in the beginning class, the charts should be based upon the words found in the first few pages. Some special devices that can be used as seat work in language and arithmetic should also be prepared, as well as phonics charts and flash cards for word drills. The making of these simple helps will not require much time, and the teacher will enjoy the satisfaction of being prepared for her work from the first day. I have seen young teachers lose control of the room the first week, because they had not prepared and planned the work and could not keep the students interested. Remember that interest is the cure for the majority of the ills of school life. With it, discipline takes care of itself; let the students lose interest, and trouble begins. A prominent educator walked into our class in school management one day, and, without a comment, wrote this sentence on the board: "Attitude is the greatest factor in education." True. The attitude of the teacher and of the

students toward their work will largely determine the character of the results.

A teacher should visit her school long enough before the opening of the term to have her recommendations adopted. The floor and walls should be cleaned as well as the windows and the schoolroom thoroughly disinfected. The room should be made as attractive as possible, as the environment will directly affect the teacher's work as well as that of the students. The outhouses should be inspected and carefully cleaned and disinfected.

The school register, records, and course of study should be obtained from the clerk of the district and carefully studied before the opening of school. A school census is now required in many states. This is taken by some one authorized by the board, and a copy is given to the teacher. She is then able to determine just who should be in school when the term opens. The laws are usually strict regarding attendance at school, and it is the duty of the teacher to report any children under school age who may be absent. In Minnesota the law requires every boy and girl under sixteen years of age to attend school every day there is school in the district, unless legally excused by the school board. A child under fourteen years of age cannot legally get a permit to remain away from school without a physician's certificate that his health would be impaired if he remained in school. Blanks should be provided on which to report to the county superintendent, as well as to the clerk of the board, any violations of the attendance laws of the state.

A suitable boarding place must be obtained for which it is best to arrange personally before the opening of school. If former teachers have been sensible, there will be little difficulty. Country-bred teachers usually have no trouble in finding a boarding place, nor in holding one. The

city girls and young men spoil things for the teachers that follow.

The first day of school will have no terrors for the young teacher who has carried out the suggestions given above. She is prepared for her work and should feel confident of success. She should have a working program of the recitations and study periods on the board for the guidance of herself as well as of the pupils. Either a temporary or permanent program is necessary from the first day on. If the records have been studied, the teacher will know just what classes will have to be organized. Classification must be made quickly and lessons assigned. A business-like teacher will command the respect of the pupils from the start. The teacher who can secure the confidence and co-operation of her students the first day will very likely hold both throughout the year.

The environment of pupils has much to do with their ability to work in the schoolroom. The windows should not only be well arranged, so that the light is good, but the teacher must see that the shades are regulated to admit light to the best advantage. The careful teacher will not forget to roll the shades on dark days, nor to draw them when the direct rays of the sun are in the eyes of the pupils.

The heating plant needs careful study and attention. The dampers must be kept well regulated, so that plenty of fresh air may be obtained. Use the lime water test and make sure that the air is reasonably pure. In cold weather the dampers should all be kept closed until after the fire is well started. The room will be heated more quickly in this manner and fuel will be saved. It goes without saying that the room should be warm and comfortable before the students arrive in the morning. The district should employ a janitor, but, if the teacher contracts to do the janitor work,

she must be present early enough to see to it. The school-room should contain desks of different sizes, and the teacher must use good judgment in seating the children. A suitable desk of such height that the feet of the child rest firmly on the floor and do not dangle is necessary to health and comfort. The desks ought to be arranged so that the light will come from the left, or, if the windows are not unilateral, from the left and rear. Of course these advantages are not possible in the old "box car" type of building where there are windows on both sides of the schoolhouse.

The students should be encouraged to bring flowers in the spring and fall. If the building is sufficiently warm, a few plants can be kept all winter. An aquarium is always interesting to boys and girls and is easily made and stocked. A few tadpoles, crayfish, minnows, snails, clams, etc., will be all that is necessary. By placing a few water plants in the sand the aquarium may be made self-supporting. A small reading table with magazines brought from the homes will not be abused in the right kind of schoolroom. A small stove and outfit of cooking utensils for hot lunches during the cold weather may be neatly arranged in one corner. Exhibits, homemade, and those that can be obtained from firms desiring to advertise, but such as will be useful without marring the appearance of the room, may be conveniently arranged.

But few rules should be made and they ought not to be given until needed. Do not make the serious mistake of giving out so many rules the first day that the unruly boys will have an opportunity to break several of them before night. Observe your room as you teach and know everything that is going on. It is the teacher who forgets everything else while she is conducting a class who invites trouble in discipline. The students must know from the first day

that you are master of the situation. A young teacher once took charge of a school that was noted for being particularly unruly. In fact the previous teacher had been forced by the big boys to leave. The first day the new teacher said nothing whatever about rules nor was any reference made to the fate of the other teacher. He was busy "sizing up" the room, and the sizing up process was mutual. The second morning the teacher arose and said, "Yesterday you managed the school and I observed; beginning with to-day, I will run it." The students were apparently familiar enough with grammar to know that the "will" was used advisedly, and there was not the slightest inclination to repeat what they had done. Do not talk about what you are going to do—act when occasion requires.

Punishment in the schoolroom is as necessary at times as it is in the home. It is a hard subject about which to give advice. Each teacher must work out the problem for herself. Of course a teacher will not resort to corporal punishment except as a last resort, and then she will use common sense. It is necessary to make this statement, because some teachers appear to lose control of themselves, using unnatural modes of punishment, which are never conducive to any good.

The assignment of lessons is an art that every teacher ought to practice. We sometimes fail to realize how much time is wasted on account of indefinite directions and assignments. Older students should be required to keep small notebooks containing the assignments of the lessons. The teacher who carefully presents the new ideas of a lesson in advance seldom has to take subsequent time that should be used by the pupils in the recitation. Some teachers merely hear the recitation; others direct and electrify it. We sometimes learn the principles of pedagogy and then

fail utterly to apply them. Do we not too often assign so many pages from the book rather than a lesson that applies to pedagogic principles? We learn to "proceed from the known to the unknown," and then sometimes assign a lesson so foreign to anything that has been learned, that the students flounder hopelessly. About nine tenths of the subject matter taught is old and one tenth new. The new must be developed directly from the old.

Many students do not know how to study, and waste time on account of inability to apply themselves to their work. It is not wholly the amount of time a student spends on his lessons that counts, but the intensity of study. That interest that will go home with a student often prevents frivolous diversion and leads to further study and better preparation of lessons. The subject of home tasks has been discussed in some of the leading magazines recently. There would seem to be no good reason why a certain amount of outside work might not be required. There is not always time in school to get all the advanced work thoroughly. On the other hand, too much home work has often been expected. Children of the primary and intermediate divisions should complete their work in school.

Examinations should be given in the advanced classes once a month or once in six weeks, depending upon how often the report cards are sent out. An occasional written lesson, or test, may be given in the intermediate work, but no examinations ought to be held in the first three years. When examinations are required, they should mean something. The practice of giving written lessons with no thought of carefully reading and correcting the papers cannot be too strongly condemned. In computing the marks for report cards and records it is customary to have the regular daily work for the month count as two thirds

and the examination as one third of the final mark. Letters are more commonly used than figures for marking, and are undoubtedly better. A scale sometimes used is F, P, P+, and P++, in which F means fail, P, pass, P+, passed with credit, P++ passed with honor. In figures they would express marks ranging below 75% for F., 75% to 80% for P, 80% to 90% for P+, and anything above 90% for P++.

Finally, the teacher should so manage her school that the students will like to be there. School can be made so attractive and interesting that students will go there rather than stay away.

Do just a little more than is expected of you. Master the course of study you are to use; have a program and follow it; and make your school a business establishment of which you are the manager. Pleasure and success will then follow for all who are interested in the school.

CHAPTER VII

THE COURSE OF STUDY

For generations the three R's have been regarded as the backbone of elementary education. They need emphasis as much to-day as ever. But civilization has become so complex even in the country that something more than these is now necessary for the fundamentals of education.

The pioneer farmer broke up his land with oxen, sowed his grain by hand, and harvested it with a cradle. He built his log house and plastered the cracks with mud. The open fire place with its logs constituted the heating plant. The holes here and there through the roof and the cracks from which the dried mud had fallen made ventilation unnecessary. The meals were cooked in a few simple utensils hung over the fire place, and housekeeping was primitive. This was, indeed, the simple life. It was not an easy life, for, literally, the sweat of the face earned the daily bread, but the mental energy of modern rural life was not required.

Country life has changed. We sometimes hear that the good old days were better than the present, but probably few would return to them if the opportunity presented itself. But the pioneer civilization of half a century ago has gone never to return. The farmer can no longer get a quarter or half section of land for the asking. The same land that cost but a few dollars in the early days will now sell for thousands, much of it being worth more than one hundred dollars an acre. With this change in land values comes the necessity for more capital. The factors of production are land, labor, and capital, and the amount of mental energy might be said to vary directly as the amount of capital used. That is, the more money needed to carry on the business,

the more head work is necessary to make it successful. We hear much of the education of the hand in these days, and rightly so, but it is often forgotten that there must be the education of the head to direct the hand in its more complex work. It took some head work to direct the hand in the use of the cradle and flail in primitive harvesting and threshing, but it takes more to direct these same hands to operate a modern harvester and threshing machine.

Modern farming is a complicated business. In scope it is similar to a department store. In such a store the general manager must see that each department shows a profit at the end of the year, if that department is to be continued. The same business principles must be applied to the farm, if it is to be successful. The farmer must know that diversified farming is necessary to keep up the fertility of the soil. The soils of the old countries have been tilled for centuries—some of them for thousands of years, and they are more fertile to-day than many of ours. We are just beginning to realize, as a nation, that grains and grasses and cattle and hogs do not grow from air and water, and that in the last analysis all are produced from the fertility in the soil. This fertility the American farmer has been slowly mining since the lands were first cultivated, and these farm mines will some day just as surely become exhausted, as the supplies of coal and iron or any other mine in the country, unless fertility is in some manner restored to them. The great resources locked up in the soil are as truly a fund in trust for future generations as are the school funds guarded by the state constitutions, and the individual who misuses the one is as morally guilty of wrong as the official who appropriates the other. The present generation is entitled to a just share of both, but in getting this, it is not necessary to imperil future generations.

Soil fertility can be maintained by proper crop rotation and by returning the crops to the soil instead of selling them. In the days of exclusive grain cropping the straw was burned after threshing and nothing whatever was returned to the soil. As stock was added, the crops were more and more fed on the farm and the barnyard manure returned to the soil. Many farmers, even yet, do not seem to realize that this is worth from two to three dollars a load, if properly applied to the land. Even commercial fertilizers are often profitable. On a recent trip to Florida I became very much interested in the methods of a successful farmer who told me that he was only a "Georgia cracker" and had moved to Florida some years before. He stated that, on account of his lack of education, he could not do as well as he otherwise might have done. Most of his soil was of the citrus variety, sandy and light colored. The uninitiated Northerner would say it was not worth paying taxes to keep it up. On this soil I found he was putting about thirty dollars' worth of commercial fertilizer annually, and from it receiving an average of five hundred dollars a year in grape fruit and oranges. I found he had made a special study of fertilizers and that his soil needed a certain proportion of phosphate to certain other proportions of something else; also, that he applied one kind of fertilizer for a new growth of wood on his trees, and another kind for the fruit crop. He showed me where he had conducted an experiment with two acres of celery land on a low corner of his farm. This, by the way, was black soil rich in humus. On one acre he had put no fertilizer that year, but, because it was already rich from previous fertilization and proper care, he sold twelve hundred dollars' worth of celery. On another he put one hundred dollars' worth of fertilizer and marketed two thousand dollars' worth, a gain of eight hundred dollars

for one hundred in fertilizer. The local bank was ready to verify these figures. This farmer was merely applying modern business principles to farming.

The modern farmer, in order to conduct his business in a scientific manner, must know many things that his grandfather, in the same work, did not need to know. As shown above, he must understand the soil, and will need at least an elementary knowledge of soil physics and chemistry. He must know something about the capillary attraction of water and how to conserve the moisture in the soil; have a knowledge of drainage and how to sweeten soil that has become sour; understand the principles of crop rotation, and be able to apply the rotation that is best suited to his farm. Plant and animal life, germination of seeds, purity tests for grains and grasses, feeding rations for stock, animal diseases, principles of breeding, and a working knowledge of machinery and implements, are all subjects with which he must be familiar. A study of weeds and their eradication, and better methods of harvesting and caring for crops, will prevent the tremendous waste.

The farmer must be somewhat of an economist. He must watch the markets and know when to sell; he must anticipate the needs of the future and plan his crops accordingly. For instance, if the wheat market is glutted, due to to an abnormal world production, and cattle and hogs are strong, due to a limited supply, he should plant more corn and less wheat. Production must now be considered from a world, and not a local, standpoint. A knowledge of accounts is necessary in order to know what departments are profitable and what are not. There are probably several "star boarders" among the herd. A record sheet and the Babcock tester will inform the farmer when to call the butcher. The corn crop may pay a bigger dividend than

the wheat or oats. There is no accurate way of knowing this without a system of records. I have found that farmers do not keep accounts mainly for two reasons. They think a knowledge of bookkeeping is necessary and that they take too much time. In neither respect are they correct. Simple accounts sufficient to conduct all the business of the farm can be taught to children in the country school as part of the arithmetic work, and correlated with agricultural and industrial work. A few ledger cards, or a single book, and a few printed forms are all that is necessary, so that the time element will become a negligible factor. An average of ten or fifteen minutes an evening will keep all the accounts necessary to make farming a real business, and this time will pay larger returns than any other part of the day. The business farmer must know the money markets as well as the crop and cattle markets. The farmer, just as any other business man, needs money at certain times. In some sections of the country he has been discriminated against and charged exorbitant rates of interest. This imposition has been partly, at least, his own fault for lack of business principles.

The farmer's wife lives in a different environment from that of her grandmothers. Just as the conditions of the present have changed the methods of conducting her husband's business, so her work has become much more complex. Modern housekeeping is a highly specialized science. In these days when hired help is so scarce, it is all the more necessary that the housekeeper be efficient. In any event she must know in order to direct. A thorough knowledge of cooking necessitates something more than practice in that art, and homemaking is vastly more than cooking. That the fundamental principles of cooking may not have been learned in years of practice is often too evident by what

those at the table are forced to eat. This ignorance of scientific food selection and preparation is probably not true of many homes from which our teachers come, but it is, nevertheless, so true of a great many homes in the common walks of life that the consequences of it are serious. The relation of proper food to the mental and physical efficiency of the individual has been clearly shown by scientists. Food study and the application of scientific principles to cookery should be part of every girl's education.

Sanitation and its relation to disease should be thoroughly understood. Modern heating, lighting, and ventilation require special intelligent attention. Carelessness and indifference toward the little things of the home often greatly decrease the efficiency of the management. I often judge this efficiency by what I call the three cardinal points of good housekeeping—the condition of the washbasin, the singing tea kettle and the well regulated fire in the stove. The clean washbasin indicates a clean and sanitary home; the kettle of water ready for use at all times shows thoughtfulness, and that time will not be wasted in that home; and, finally, the even fire will not waste fuel, nor go out during meal time. It shows system. With these three virtues, sanitation, thoughtfulness, and system, backed up by a scientific knowledge of homemaking, the farm home, or any other, will not be inefficient. The course of study in the schools has or should have a direct bearing on the things enumerated above.

A well rounded education is necessary for both the farmer and the farmer's wife, if the suggestions discussed so far in this chapter are to be realized. I have merely attempted to show wherein the three R's are entirely inadequate to meet present conditions. The course of study in the rural schools must be changed. If a knowledge of the

things previously discussed is essential, where are the children to get this training, if not in the rural schools? There is no good reason why it cannot be given even in the one-room school, until association and consolidation of schools provide better facilities. It is true that the rural teacher must be especially trained for the new duties, as discussed in a previous chapter. That some communities are indifferent toward a rejuvenated rural school only proves the statement already expressed, that, in many instances, farmers are not alive to their needs and opportunities. The rising generation does see these needs, as indicated by the desire to attend short courses, and in other ways to improve themselves and their environment.

The course of study for the modern rural school should, then, so present each subject that it may have a direct bearing on country life. The course must be different from that in the city schools. The argument that the country school of a generation ago was good enough for me and it is good enough for the country boys and girls of to-day, is not only inconsistent, it is positively silly. Show me the person who makes such statements in your community, and I will show you a "grouch" or a miser. Invariably the person who is opposed to better schools or to modernizing the course of study is afraid his taxes will be raised, or he wants to profit from the labor of a child which the law has to protect from its own selfish parent, or he is the chronic "kicker" of the district and is opposed to anybody or anything that stands for progress. Such a person is jealous of his children, if they get an education, and he is envious of his prosperous neighbor. We teachers should, therefore, not become discouraged when progress is not as rapid as we should like. Reforms are not made in a day. The American rural school is better now than ever before, but it will be

much better. Public opinion must, however, pave the way.

The subjects taught in country schools should be about the same as those for city schools, the difference being in the way they are taught. They are reading, English classics and composition, spelling, writing, music, drawing, geography, history, arithmetic, civics, or citizenship, agriculture, industrial work, including the use of tools and simple bench work for the boys, and plain sewing for the girls, and a study of foods and nutrition in connection with the serving of hot lunches at noon. These subjects are all discussed quite fully in the chapters that follow. We need to tear down some of the traditional barriers that stand in the way of the progress we should make in many of these subjects. Students stammer and stumble along in reading in the upper classes, when they can be taught to become independent and read anything in three or four years. Likewise children leave school without a working knowledge of arithmetic, mainly because they and their teachers have been floundering around in a labyrinth of numbers without getting anywhere. The seventy-two mental processes of arithmetic are purely mechanical and can and should be mastered during the drill age of the child in the intermediate years of school. The application of these to—to what? not to the exercises of the textbook, but to the problems of life, best expressed in schools through the industrial work, is the business of the last years in the elementary school. Accounts with actual records from home should be part of this work. Egg and milk statistics are always available for records. In short, there is little excuse for a person's leaving school without a knowledge of all that he will need in arithmetic, and it does not need seven or eight years for the acquisition. Children are taught to waste too much time in school. Eliminate the non-essentials and four or five years of arith-

metic well taught should make the student proficient. Not one girl in twenty-five, for example, will ever have as much direct use for arithmetic as she will have for cooking and sewing, and yet when we attempt to apply this very subject to these things, some ignorant person sounds the alarm that fads are being taught in the schools. "O consistency, thou art a jewel!" The same might be said of the boys in relation to their manual training.

The county superintendent, superintendent of a system of associated schools, or the principal of a consolidated school should formulate a uniform course of study for his particular unit. I do not believe a uniform course for the state is wise, except where it is merely suggestive, as the conditions may be very different. Agriculture does not need emphasis in a lumbering or mining region. I would not be misunderstood in this. I am anything but a fatalist, and do not believe every farmer's children should stay on the farm, nor that any other child should necessarily follow the occupation of his father. Fortunately for society, there is no caste in America, but the fact remains that children are likely to follow the occupation of the parent, and, consequently, the schools should reflect predominantly the industries of the community in which they are situated.

Teachers' meetings should be called frequently by the person in charge of the rural schools to discuss the course of study. Teachers, as a rule, are not as familiar as they ought to be with what they should teach. Young teachers cannot be expected to be familiar enough with the needs of the community to formulate the course of study, but they should be held responsible for carrying it out to the best of their ability. If the public could only realize the time and energy that are wasted by teachers and students in many schools, because there is nothing definite to follow—no course

of study, toleration would cease. Physical inefficiency is easily seen; mental inefficiency should be seen, but often is not. It is not the fault of the teacher, when results are not what they should be, if she has nothing definite in each subject to follow. It is her fault, if she has a course and does not follow it.

The various outlines for the subjects of the course of study given in this book are based upon the Three Division Plan now used in the associated rural schools under the supervision of the author. This plan provides for seven years' work. The eighth year work is not offered except in the semi-graded schools of two rooms, as the students enter the Junior High School department of the central school for that work. In any event, I doubt the advisability of any teacher's attempting to teach eight "grades" in a country school. We would not think of doing so in town, even if the numbers were small enough. I know more than one town school where three teachers do not have as many students combined as one teacher has in the country.

The First Division work is for the students of the first three years. There should be three classes in this division, but in some subjects they recite together. The Second Division is the work of the fourth and fifth years. They should recite at the same time in every subject and be combined in some subjects. The Third Division constitutes the work of the sixth and seventh years. These two classes should be combined in every subject. A complete discussion of just how this plan works out is found in the next chapter on The Daily Program, and in the discussion of each of the academic and industrial subjects to be taught. I wish to say that every suggestion made in the program and the courses that follow are based on actual experience in the classroom and not on theory alone. The object of

grouping and alternating is to save time and to get the maximum efficiency out of each student for the number of classes and subjects that have to be managed by one teacher. The author claims little originality for this organization, except as he has applied the principles of combination and alternation of classes to the three divisions as stated above. Wisconsin, Illinois, and, just recently, Massachusetts, have applied these principles in their rural schools.

CHAPTER VIII

THE DAILY PROGRAM

At the outset I wish to state that the Three Division Program given is the one suggested for a one-room rural school. It has been planned with the aid and advice of hundreds of teachers with whom the author, during the last few years, has had the pleasure of discussing school management and methods in summer schools, and it has been revised from time to time on account of valuable suggestions from those who have observed it in the schoolroom.

A careful study of the daily programs used by the teachers attending the summer session to which reference has been made revealed several interesting facts. In the first place practically all provided for a graded school, patterned after the school in the town where the teacher had attended. These grades ranged in number from three to ten, and in a few instances there were two classes in a grade. A sub-first grade, or chart class, corresponding to the kindergarten of the city schools, was found in many of the programs. The number of recitations daily ranged from fifteen to fifty-six, the former being for a school with only three grades. As far as we were able to determine, there was little or no attempt to make the program, or the course of study, uniform in the counties represented by the teachers present. A few schools were attempting to do some so-called high school work. While the program with fifty-six recitations was an extreme case, the average number was nearly thirty a day. Allowing a minute for calling and dismissing each class, it is evident that the recitation period is cut down to so little time that the best teacher could not accomplish much. In the extreme case the time is less than five min-

utes for each recitation, and averages only ten minutes per recitation with the thirty. Every program providing for eight full grades, showed that the upper classes received more than their share of time, and that the lower classes suffered.

The legitimate mechanics of the schoolroom will take considerable time during the day. Often more time than is necessary is used in requiring certain formal directions to be carried out. Classes should pass orderly but quickly to and from their recitations. The teacher requires some time to assign the lessons and present new work. Time is needed to give and inspect the seat work. Imagine a teacher who can do all this, and more that will present itself during the day, and have only an average of five minutes for the recitations. Practically all the time is wasted, as the teacher who had this program admitted, but she defended herself by stating that it was the program left in the schoolroom and she supposed she was to follow it. So much the worse; for the pupils had been kept in this high strung state of rapid-fire recitations for two years, at least. The school had a new teacher each year, and the wonder is that she lasted a year. That any program with thirty or more recitations a day, and only one teacher, is undesirable, will be admitted by all. In order to manage seven or eight grades, and keep the classes separate, it is necessary to have at least that many recitations. The question arises, which is better, to have thirty or forty single recitations with little time, or combine some of the classes, and have more time for each class? After experimenting with numerous classes in various ways, I am convinced that the longer recitation with combined classes is by far the better plan.

Combination and alternation are the only methods by which we can gain more time for the recitation. By combination in this program we mean two things. First, cer-

tain classes are combined to form a division, the classes of the division reciting at the same time, but not together. For example, the fourth and fifth-year students form the Second Division, and the two arithmetic classes of this division recite from nine forty to ten o'clock. They recite at the same time, but are doing different work. Second, certain other classes are combined and are doing the same work, as, for example, the classes of the Third Division. By alternation is meant that a certain subject, or part of a subject, is offered one year, and another subject, or the other part of a subject, alternates with it and is offered the next year. Geography alternates with history in the Third Division, and half of the books in reading for this division are read one year, and the other half the next year, the classes reciting together.

The advantage of such a program over one with five and ten-minute recitations is evident. While there are some disadvantages in combining classes and alternating the work, they are minor compared with the results that can be obtained by an efficient teacher. The Three Division Program provides for twelve regular recitations daily, besides a ten-minute drill in phonics, a five-minute drill in mental arithmetic, and a general period of one hour.

A study program should always be provided. It did not appear in most of the programs discussed in the summer schools, showing that a study program is not commonly arranged for the pupils. It follows, then, that in many cases the teacher does not know what the pupil is studying while she is conducting a recitation. He is left to himself to "begin anywhere, and he will usually arrive nowhere" at the end of the study period. The question as to whether a study period should precede or follow a recitation is often discussed. For the lower classes there is an

advantage in having the study period after the recitation, as the seat work can then be based upon the work of the recitation. In the upper classes it would seem best to reverse the order, thus giving the student an opportunity to have any troublesome points cleared up during the recitation. It is not always possible to arrange the periods in this order, however.

The Three Division Program shown on page 96, as already intimated, makes provision for seven years' work in the rural school. Those who object to only seven years should remember that most of the country pupils never complete that many grades, and those that do are the very ones that will be going to a village school, where they will get much more out of the eighth grade than they could possibly get in the rural school. Seven years' work can be better done than eight. That is, the student should be better prepared after seven years with twenty-minute recitations as provided in a division plan program, than with eight years of ten or fifteen-minute periods in a program where combinations are not made. There is no question that the elementary work now done in eight years in town or country can be done in six years and with greater efficiency under a properly rearranged plan. The success of such a program will depend entirely upon the teacher. I know of no plan that will show up the weakness of a teacher, as the Three Division Program. She must be systematic and alert from nine o'clock to four.

An analysis of the program will show a ten-minute period for opening exercises. These may be varied with Music, Current Events and talks on Hygiene. Primary reading is allowed twenty minutes. At first it is best to have the first year class by itself. Do not have a class below this, as it is a waste of time in a rural school. The

second and third year pupils may recite at the same time from the start, and, after the first third of the year, the entire First Division reading may be conducted at once. These classes are usually small, averaging but three or four in a class. The "endless chain" method of conducting the primary reading is discussed in the next chapter for those who are not familiar with it. Reading has been arranged first in the primary work, because it is the most important subject for that division. Arithmetic is placed first in the other two divisions for the same reason. In the Second Division arithmetic, the two classes are called at the same time, but the work is different. While the new lesson is being presented to one class of this division, the other class may be working at the board under the direction of the teacher. They then exchange places and the other class receives instruction in the advanced lesson. In this way the teacher has each individual under her direction for twice the time she could give him, if the classes recited at different times. In the Third Division arithmetic, the classes take the same work, doing one half of the two-year course one year, and the other half the next year. Students of the sixth and seventh years should find no difficulty in working together in this manner. A ten-minute phonics period for the entire First Division is recommended. While this work will be review for the second and third year students, it will undoubtedly be needed.

If the recess period is supervised as suggested in Chapter IV, the ten minutes should be conducive to more good than the ordinary fifteen-minute intermission. In case it is desirable to take five minutes more, it would be wise to take it from the First Division Literature and Language period rather than from any other of the morning session. The oral arithmetic, though only of five minutes' duration, can

be made a great help to the work in arithmetic, and should not be omitted. The teacher should have a copy of some good oral text for reference. The work in literature may be made very interesting, if stories are told or read by the teacher. A suggestive list of selections worth memorizing is given in Chapter X. Some of these should be available in the library. The reading of the second and third division follows in order, the two classes of each division reciting together. Since these are twenty-minute periods, several books can be read during the year. Ample time is given for studying reading to warrant good recitation work, if the students understand phonics and the use of the dictionary. Ten minutes daily will suffice for written spelling, if conducted as suggested under that subject in Chapter XI. The written lesson is supplemented by a twenty-minute oral review once a week. The five minutes allowed in preparation for luncheon may be used whether the hot lunch is served or not. During the warm days of the fall and spring, the noon lunch would probably be enjoyed more on the lawn outside, if there is suitable shade and grass. Following this the teacher should spend the noon hour in games with the children. Chapter IV gives suggestions for this feature of school life.

The First Division numbers are given while the children are fresh from the noon exercises. The second and third year students can be combined. Give few or no numbers in the first year, except as they may be combined with industrial work. Second Division geography is given twenty minutes, and classes recite together. In the Third Division the geography alternates with history, as discussed in Chapter XII, every other year or semester as seems most desirable. Students are given two periods in which to study this subject in the advanced division, and they should

be able to do considerable supplementary reading. First Division reading follows for twenty minutes. The afternoon recess is also supervised. Better have no recess, unless the teacher can be on the playgrounds with the pupils at least often enough to supervise the play. The language of the Second Division includes memory selections from literature and textbook work.

The general period of one hour is coming more and more into common use. It affords an excellent means of providing for those subjects that cannot be offered every day. The plan in the Three Division Program provides for writing three times, group reading twice a week, oral spelling once a week, and Third Division language three times a week, with twenty-minute recitations for each subject. In addition to the recitation work in language, this division has a twenty-minute period daily for language work in industrial booklets. It will be noticed that two hours a week are allowed for the industrial work of the school. This is little enough time; but, if suitable materials are on hand, much progress can be made during the year. The First Division should remain for the writing period, but may be dismissed for the other periods, if desired.

The study periods of this program should be carefully examined. The seat work of the First Division is very important. It should be based on reading in the morning, and on language during the session between recess and noon. Afternoon number work and industrial work should occupy the attention of those who remain in the seats. The second and third year students should have regular study periods for reading. Do not let the seat work degenerate into "busy work," as it always will, if there is no definite purpose in the mind of the teacher when she assigns the work. Chapter XV gives suggestions for the study periods.

See that the older students learn how to study, so they may use these periods to the best advantage.

It is suggested that the reader keep the page open to the Three Division Program while reading the above discussion of it, as in this way it may be the more easily understood. The other programs are not discussed in detail, as they can be understood from the tabulations. The Four Division Program provides for two classes in each division, in a school with only one teacher. The others are for a two-room or semi-graded school with two teachers. As already stated, the author prefers the Three Division Program for the average rural school, as it is the most effective, if properly managed.

THREE DIVISION PROGRAM

Time	First Division (1-3 yrs.)	Second Division (4-5 yrs.)	Third Division (6-7 yrs.)
9:00- 9:10	Opening Exercises (Songs, Current Events, Hygiene, etc.)		
9:10- 9:40	Reading a b c	Arithmetic	Arithmetic
9:40-10:00	Seat Work	Arithmetic	Language
10:00-10:20	Seat Work	Reading	Arithmetic
10:20-10:30	Phonics	Reading	Reading
10:30-10:40	Recess (Supervised)		
10:40-10:45	Oral Arithmetic		
10:45-11:05	Literature and Language	Spelling	Spelling
11:05-11:25	Seat Work	Reading	Reading
11:25-11:45	Seat Work	General History Stories	Reading
11:45-11:55	Written Spelling		
11:55-12:00	Preparation for Luncheon		
12:00-12:20	Luncheon		
12:20- 1:00	Games (Supervised)		
1:00- 1:30	Numbers	Geography	Geography or History
1:30- 1:50	Seat Work	Geography	Geography or History
1:50- 2:10	Seat Work	Reading	Geography or History
2:10- 2:30	Reading	Language	Language
2:30- 2:40	Recess (Supervised)		
2:40- 3:00	Industrial Work	Language	Industrial Booklets
3:00- 3:20	Muscular Writing, Monday Tuesday and Thursday		
3:20- 3:40	Dismissed	Group Reading, Monday and Tuesday	
3:20- 3:40	Oral Spelling every Thursday		
3:40- 4:00	Dismissed	Industrial Work	Language, Monday Tuesday, Thursday
3:00- 4:00	Industrial Work, Wednesday and Friday		

NOTE: The words given in Italics in these programs represent the recitations; the others are the study periods. See chapters on academic work for discussion of each subject and how the classes are managed.

FOUR DIVISION PROGRAM

Time	First Division (1-2 years)	Second Division (3-4 years)	Third Division (5-6 years)	Fourth Division (7-8 years)
9:00- 9:10	Opening Exercises (Songs, Current Events, Hygiene, etc.)			
9:10- 9:25	Reading	Reading	Arithmetic	Arithmetic
9:25- 9:40	Reading	Reading	Arithmetic	Arithmetic
9:40-10:00	Seat Work	Seat Work	Arithmetic	Language
10:00-10:20	Seat Work	Seat Work	Reading	Arithmetic
10:20-10:30	Phonics		Reading	Reading
10:30-10:40	Recess (Supervised)			
10:40-10:45	Oral Arithmetic			
10:45-11:00	Language and Literature	Language and Literature	Spelling	Spelling
11:00-11:15	Language and Literature	Language and Literature	Spelling	Spelling
11:15-11:30	Seat Work	Seat Work	Reading	Reading
11:30-11:45	Seat Work	Seat Work	Gen. Hist. Stories	Reading
11:45-11:55	Written Spelling			
11:55-12:00	Preparation for Luncheon			
12:00-12:20	Luncheon			
12:20- 1:00	Games (Supervised)			
1:00- 1:15	Numbers	Numbers	Geography	Geog. or Hist.
1:15- 1:30	Numbers	Numbers	Geography	Geog. or Hist.
1:30- 1:50	Seat Work	Seat Work	Geography	Geog. or Hist.
1:50- 2:10	Reading	Seat Work	Reading	Geog. or Hist.
2:10- 2:20	Reading	Reading	Language	Language
2:20- 2:30	Seat Work	Reading	Language	Language
2:30- 2:40	Recess (Supervised)			
2:40- 3:00	Industrial Work		Language	Indust. Book.
3:00- 3:20	Muscular Writing, Monday, Tuesday and Thursday			
3:20- 3:40	Dismissed	Group Reading, Monday and Thursday		
3:20- 3:40	Dismissed	Oral Spelling every Thursday		
3:40- 4:00	Dismissed	Industrial Work		Language Mon., Tues., and Thurs.
3:00- 4:00	Industrial Work, Wednesday and Friday			

SEMI-GRADED PROGRAM (Primary Room)

Time	First Division (1st year)	Second Division (2nd year)	Third Division (3-4 years)
9:00- 9:15	Opening Exercises		
9:15- 9:35	Reading	Reading	Reading
9:35- 9:55	Seat Work	Reading	Reading
9:55-10:15	Seat Work	Seat Work	Reading
10:15-10:30	Phonics	Seat Work	Seat Work
10:30-10:40	Recess (Supervised)		
10:40-10:45	Oral Arithmetic		
10:45-11:05	Language and Literature	Spelling	Spelling
11:05-11:25	Seat Work	Language and Literature	Language and Literature
11:25-11:45	Seat Work	Seat Work	Language and Literature
11:45-11:55	Seat Work	Written Spelling	
11:55-12:00	Preparation for Luncheon		
12:00-12:20	Luncheon		
12:20- 1:00	Games (Supervised)		
1:00- 1:20	Reading	Numbers	Arithmetic
1:20- 1:35	Seat Work	Numbers	Reading
1:35- 1:55	Seat Work	Seat Work	Arithmetic
1:55- 2:10	Reading	Reading	Geography or History
2:10- 2:30	Seat Work	Reading	Geography or History
2:30- 2:40	Recess (Supervised)		
2:40- 3:00	Industrial Work		Geography or History Stories
3:00- 3:20	Muscular Movement Writing		
3:20- 3:40	Dismissed		Oral Spelling, Monday, Tuesday and Thursday.
3:40- 4:00	Dismissed		Sight Reading Monday, Tuesday and Thursday.
3:20- 4:00	Dismissed		Industrial Work Wednesday and Friday.

SEMI-GRADED PROGRAM (Upper Room)

Time	First Division (5th year)	Second Division (6th year)	Third Division (7-8 years)
9:00- 9:15	Opening Exercises		
9:15- 9:35	<i>Reading</i>	Arithmetic	Arithmetic
9:35-10:00	Reading	<i>Arithmetic</i>	Arithmetic
10:00-10:30	Arithmetic	Reading	<i>Arithmetic</i>
10:30-10:40	Recess (Supervised)		
10:40-10:45	<i>Oral Arithmetic</i>		
10:45-11:05	<i>Arithmetic</i>	Language and Literature	Spelling
11:05-11:25	Language and Literature	<i>Reading</i>	Reading
11:25-11:45	Spelling	Spelling	<i>Reading</i>
11:45-11:55	<i>Written Spelling</i>		
11:55-12:00	Preparation for Luncheon		
12:00-12:20	Luncheon		
12:20- 1:00	Games (Supervised)		
1:00- 1:20	<i>Language and Literature</i>	Geography	Language and Literature
1:20- 1:45	Reading	<i>Language and Literature</i>	History or Geography
1:45- 2:10	Geography	History Stories	<i>History or Geography</i>
2:10- 2:30	<i>Geography</i>	Reading	Reading
2:30- 2:40	Recess (Supervised)		
2:40- 3:00	<i>Muscular Writing</i>		
3:00- 3:20	History Stories Mon. and Tues.	<i>History Stories or Geography</i>	Industrial Booklets
3:20- 3:40	Reading Thurs.	Reading	<i>Language and Literature</i>
3:40- 4:00	<i>Group Reading, Monday and Tuesday</i>		
3:40- 4:00	<i>Oral Spelling Every Thursday</i>		
3:00- 4:00	<i>Industrial Work, Wednesday and Friday</i>		

CHAPTER IX

TEACHING READING

Undoubtedly the most important subject for the first few grades, or the first division of an ungraded school, is reading. Students are usually good or poor in their work in the upper grades in proportion to their ability to read. It is impossible to master a lesson in geography or history, or to solve a problem in arithmetic without being a fairly good reader. While the schools as a whole are much better than they have ever been, it will be admitted by those who have carefully studied the situation, that the average school does not get the desired results in reading, especially in the rural schools. Rural school teachers are generally young and comparatively inexperienced. They recognize the defects, but rarely apply a remedy. If they do succeed in making conditions better, their tenure of office is so short that the improvement is often merely temporary. In my judgment poor reading in the rural schools is due to three chief causes: lack of phonics, too little dictionary work, and not enough time spent in reading.

Phonics teaching is absolutely necessary, if the child is ever to become self-reliant in reading. The plain fact is that very few teachers really know enough about phonics to be able to teach reading well. This statement is made advisedly after about twelve years experience in supervising grade and rural teachers. It is the exception to find phonics on the program of a country school, and yet it is as impossible to make independent readers out of students without phonics as it would be to have them solve complex problems without having the fundamental operations in arithmetic. It cannot be expected that children will master enough

"sight words" to read fluently, and the experience of every teacher will show that they do not. I have seen upper grades where the students would invariably stumble over the reading lesson, and primary grades where every child could pick up a newspaper and read it almost as fluently as an adult. The difference was in the teaching, not in the children. Any teacher who is worthy of the name can master phonics, if she is but willing to study carefully the manual of the method reader she is using. Afterwards it will not be difficult to teach what has been learned. Probably no one method is better than the others. Any up-to-date one in the hands of a good teacher will secure the desired results.

Dictionary work, and plenty of it, must follow the phonics. By the time the student has entered the Second Division, or fourth and fifth grades, he should own a dictionary and know how to use it.

The third cause of poor reading enumerated is perhaps the most serious of all. Observation of many schools would show that, even if the mechanics of reading were mastered through phonics and the dictionary, the students could not become forceful readers with expression in the time they actually read in school. The child learns to read by reading, and not by being told how to read. The following instance, applicable to many schools in both village and country, illustrates the case. A class of thirty students in an intermediate grade had one reading period of thirty minutes daily. If the teacher used no time whatever, there would be an average of one minute each for the pupils to read aloud. Compute this for the entire year and allow for no absences, and we find the ridiculous sum of three hours. And yet we sometimes wonder why the schools turn out poorer readers than they should. The students may recite

more than once a day, but after the teacher has used all the time she may legitimately take—she often uses more—how many minutes a day do the students actually read aloud? Not enough, you will probably agree; but how is more time to be obtained? Eliminate numbers and some other work, except incidentally, in the first year and part of the second. Get rid of the waste time in the mechanics of the schoolroom. Make directions short and to the point. “Read the next little story, Mary.” “Be sure to tell it to me just as it is.” “Are you sure that is just right?” “There, that is better, Mary,” are expressions we have often heard when the child reads one line of half a dozen words. To waste still more time, the pupil is asked to walk several steps to the teacher and back again. Just what principle of pedagogy such teachers have in mind, I have never been able to discover. Others, with the simple direction, “Next, Mary,” will get a half page read in the same time.

Some teachers are satisfied with having a class read two or three books in a year. The author can remember when one book was all that his class was expected to read. Every spring for several years I have visited a certain school in Minnesota, where the students are noted for good reading. The students of the first four grades average reading about thirty books a year in school. The results are marvelous. I have never seen better reading anywhere. These teachers are working on the theory that the child learns to read by reading, and they are not only getting expression that can be obtained in no other way, but a wealth of information that makes all other subjects easy. A list of the books read in these grades last year is given for your consideration at the close of the chapter.

Dr. Judd, of Chicago University, made some interesting investigations in reading. His conclusions are that, during

the last half of the elementary grades, the child is seriously retarded in this subject, because the schools still use the same methods as in the primary grades. The pupil stumbles, because his eye reads so much faster than he is able to pronounce the words. Hence, the most of the reading of the advanced classes should be silent rather than oral, and the teacher must use entirely different methods in the advanced grades than she uses in the primary grades. This is an interesting conclusion and well worth considering.

Group reading is a plan now used in many of the best schools to supplement the regular reading classes. It is usually sight reading and, therefore, books a few grades lower than the regular reader should be used at first.

The program suggested for rural schools allows twenty minutes for group reading three times a week. The pupils of the first and second years are usually not sufficiently advanced for this work, although I have seen it well done in the primary room of a graded school. In conducting the recitation, the teacher should divide the entire school into groups of two, unless there are thirty or more students. In that case, three in a group would be better. The fewer in a group, the more time each has to read, but there must be no more groups than the teacher can give individual attention. One student in each group acts as leader and is responsible for getting and returning the books. We have used five cent paper covered classics for this work for six years and had them in good condition. Of course, this would not be possible, if the students used the books at their desks. They have them only during the recitation. One entertainment in almost any rural school would furnish enough money to buy abundance of group reading material.

As soon as the books are passed one student of each group begins to read aloud. He reads a paragraph or two,

and then the other reads until a convenient stopping place is reached. If there are more than two in a group, all read in turn, as many times around as the period will permit. With two in a group, each pupil reads for ten minutes, a longer time than is devoted to reading in the regular class in an entire week.

If group reading has never been tried in a school, the students will probably think it odd for a few times until they get used to it. But this "organized confusion" should be conducive to excellent results. Everything, however, will depend upon the teacher. Some of the best reading I have ever seen has been done in this way, where the teacher passed quietly from group to group, pronouncing a word here, correcting a faulty expression there, and keeping up the interest everywhere. On the other hand, teachers have started the group reading work and then sat at the desk doing something else for the entire period. Such a plan not only invites failure; it insures it.

A list of the classics used for group reading in one school, is here given, because it may be helpful to young teachers. The author would have appreciated such information a few years ago. In addition to literature, these lists include material for elementary science, geography and history.

SUGGESTIVE GRADED LISTS FOR GROUP READING

FIRST LIST

First Grade

Story of the Buds.
Flower Friends I.
Butterfly's Home.
Babes of the Meadow.
Babes of the Wood.
Plant Babies.

Aesop's Fables, I.
Aesop's Fables, II.
Butterfly's Baby.
Selections from Aesop I.
Selections from Aesop II.

Second Grade

Roots and Stems.	The Flower World.
Robinson Crusoe I.	Little Red Riding Hood.
Robinson Crusoe II.	Flower Friends II.
Robinson Crusoe III.	Flower Friends III.
Robinson Crusoe IV.	Some Bird Friends.
Children of History I.	Legends of Spring Time.
Children of History II.	

Third Grade

Stories of Pilgrims.	Edison.
Story of Pocahontas.	Puss in Boots.
Washington Irving.	Story of Norsemen.
George Stephenson.	Liberty Bell.
General Putnam.	Whittier.
Columbus.	Cyrus W. Field.
Robert Fulton.	Story of Bryant.
Peter Cooper.	Eli Whitney.
Story of Franklin.	William Penn.
Tennyson.	Washington.
Stories of Am. Rev. I.	Daniel Webster.
Stories of Am. Rev. II.	Lincoln.
Stories of Am. Rev. III.	Little Lucy's Wonderful Globe I.
Stories from Garden and Field I.	Little Lucy's Wonderful Globe II.
Stories from Garden and Field II.	Little Lucy's Wonderful Globe
James Watt.	III.
Louisa M. Alcott.	Grimm's Fairy Tales, I.
S. F. B. Morse.	Grimm's Fairy Tales, II.
Hawthorne.	Boston Tea Party.

Fourth Grade

Story of Marquette.	Stories of Woodland II.
Joan of Arc.	Chevalier La Salle.
Selections from Longfellow.	Holmes.
Stories of Flowerland I.	The Golden Touch.
Stories of Birdland I.	Pioneers of West.
Stories of Birdland II.	Fremont and Kit Carson.
Longfellow.	Story of De Soto.
Stories of Woodland I.	

Fifth Grade

Thomas Jefferson.	Three Golden Apples.
Story of Dickens.	Miraculous Pitcher.
Story of Lafayette.	Paradise of Children.
Admiral Farragut.	Story of Audubon.
The Chimaera.	

Sixth Grade

Thanatopsis.
 Selections from Longfellow.
 Great Carbuncle.

John Gilpin.
 King of Golden River.
 We Are Seven.

Seventh Grade

Madison.
 Patrick Henry.
 Peter Stuyvesant.
 Henry Hudson.
 Life of Grant.
 Washington.
 Enoch Arden.
 Evangeline.
 Rime of Ancient Mariner.
 The Voyage.

Philip of Pokanaket.
 Peter the Great.
 Oliver Hazard Perry.
 Lays of Ancient Rome.
 George Dewey.
 Declaration of Independence.
 The Culprit Fay.
 John Paul Jones.
 The Boy Lincoln.
 John Hancock.

Eighth Grade

Howe's Masquerade.
 Mr. Higginbotham's Catastrophe.
 Frederick Douglas.
 Choice Selections.
 Stratford-on-Avon.
 Merchant of Venice.
 As You Like It.
 Julius Caesar.
 Prisoner of Chillon.
 Othello.
 Tempest—Mid-summer Night's
 Dream.

Cotter's Saturday Night.
 The Deserted Village.
 Henry VIII.
 Lady Eleanor's Mantle.
 Lincoln's Speeches.
 The Elegy.
 Richard II.
 Jefferson.
 Prophetic Pictures.
 John Adams.
 Alexander Hamilton.
 Minister's Black Veil.

SECOND LIST

First Grade

Fairy Stories of the Moon.
 Indian Myths.
 Nursery Tales.

Sun Myths.
 Norse Legends.
 Kitty Mittens and Her Friends.

Second Grade

Stories from Anderson.
 Stories from Grimm.
 Little Workers.
 Jack and the Beanstalk.
 Adventures of a Brownie.
 Norse Legends.
 Story of Wool.

Bird Stories from the Poets.
 The Little Brown Baby and Other
 Babies.
 Gemila, the Child of the Desert
 and Some of Her Sisters.
 Child's Garden of Verses.

Third Grade

Story of Flax.	Aunt Martha's Corner Cupboard.
Story of Glass.	Famous Artists.
Adventures of a Little Waterdrop.	

Fourth Grade

Story of Coal.	Alice's First Adventures in Wonderland.
Story of Wheat.	Famous Artists.
Night Before Christmas and Other Christmas Poems and Stories.	Goody Two-Shoes.

Fifth Grade

Story of Silk.	Heroes from King Arthur.
Story of Sugar.	Whittier's Poems.
History in Verse.	Jackanapes.
A Dog of Flanders.	Stories from Robin Hood.

Sixth Grade

Gifts of the Forest.	Later English Heroes.
Great European Cities.	Story of William Tell.
Old English Heroes.	

Seventh Grade

Courtship of Miles Standish	Story of Jean Valjean.
Snow Bound.	Poems of Thomas Moore.
Man without a Country.	

Eighth Grade

Building of the Ship, etc.	Gold Bug.
Horatius, The Armada, Bunker Hill Address.	Edgar Allen Poe.

The purpose of all reading has been said to be "the interpretation of the printed page with accuracy and a reasonable degree of rapidity." From the standpoint of learning to read, it should be a thought-getting and a thought-giving process. The time of the reading class, therefore, should not be taken up with either word drills or phonics at first, but with reading only.

The teacher should own a printing press, which can be purchased for about one dollar and a half, and make a few

charts for the beginning class in reading. Chart and black-board work, together with word drills, should constitute the lessons for the first few weeks. The author believes that script and print should be taught at the same time, as a great many experiments with all classes of children have shown that they get both almost, if not quite, as easily as one at a time.

During the entire course, the work in reading should be supplemented with the story telling, dramatization, and memorizing of literary masterpieces in the language classes. Word and phonics drills should be conducted until all the students can read smoothly. Good reading necessitates rapid eye movement. Special drills for this should be given at frequent intervals. The voice and body should be allowed to help express thought. Hence the value of dramatization, plays and other work of the kind. In the seat work following the reading lesson, the pupils should have an opportunity to express the thoughts of the lesson in hand work, such as clay modeling, paper cutting, drawing, etc. These things will test the thought-getting process.

If the Division Plan instead of the grade plan is followed in the rural school, the classes in reading, as in other subjects, should be divided into three divisions. The First Division classes can either recite separately, dividing the reading period as given in the program, or all at one time, by the "Endless Chain" method. That is, the teacher can call the entire First Division for recitation and have all three classes recite at once. This method may seem difficult or even unwise; but I have seen many teachers get excellent results in this way. It will be remembered that the lower grades of a rural school do not average more than three or four students each. Hence, ten or a dozen students would constitute the entire First Division. In following the

"Endless Chain" method, the teacher has each class of the division sit in a little semi-circle around her. She starts the second and third classes in about the same manner in which group reading is conducted. They read in a rather low tone, not disturbing the other students, while the teacher presents the new work to the first class. As the other two classes are close by her, she can assist them, if necessary, without interfering with her own work with the other class. As soon as she is through with the first class, they are allowed to continue reading, and the teacher presents the new work and assists the second class. The third class work is then conducted in a similar manner. In this way, each student will be receiving the direct help of the teacher for thirty minutes in the reading recitation, whereas he would receive but ten minutes, if each class were called separately. While there are disadvantages in such a plan, the advantages are evident, if the teacher is capable of conducting the work in this way. It is a very interesting method and should not be condemned until thoroughly tried.

In the Second and Third Division, the classes in reading should be combined, that is, the fourth and fifth year pupils should recite together, reading one half of the second year's work one year and the other half the next. The Third Division, or sixth and seventh year students, should be conducted in the same way. If the students have been well instructed in those elements that are necessary to produce good reading, there is no reason why these two divisions can not be combined with profit. There is no particular difference which half of a given list of reading books is read the first year after the student has passed the First Division. A brief outline for each division follows.

FIRST DIVISION WORK (1-3 years)

While the work of the division may be carried on by the "Endless Chain" method, as already suggested, some teachers will undoubtedly prefer to keep the classes separate. The work of each year is here discussed with that plan in view.

First Year Work. First of all, some good method reader should be selected, if one has not already been adopted. A suggestive list of readers is given at the close of this chapter. The teacher's manual may be obtained from the publisher of the method reader used. This manual must be studied carefully and followed as closely as possible. The charts made for the beginning class should be based upon the first book or primer of the series used. These charts, previously suggested, may be illustrated with pictures and made attractive. Pictures for this purpose can always be obtained from old readers, magazines, and other sources. It is not best for the teacher to confine herself to one method. For example, if the sentence method is used at first, it is well to use the best of the other methods later.

The work for about the first six weeks should consist of chart and blackboard work, using both script and print. The program is arranged for a recitation period of thirty minutes in reading in the morning and twenty minutes in the afternoon for this division. The teacher should see that this time is used for reading only. Some good teachers prefer to begin phonics at the first of the year. I should rather wait until the chart work has been completed. At any rate the phonics should be given during the phonics period and not with the reading. Phonics and word drills are purely mechanical. If part of this time is taken up in presenting phonics, the child will not get the proper conception of reading. It will not be a thought-getting process.

for him. Phonics is merely a means to an end, and good reading is the end sought. Word drills should be placed on the board and a rapid drill given just preceding the study period for reading. Other drills may be printed on charts.

After the board and chart work have been thoroughly mastered, but not memorized, the primer or first book of the method series should be taken up. Usually about twenty-five or thirty pages of the primer can be studied by teaching words only. Some teachers prefer to read about that much in three or four different primers before laying a sufficient foundation in phonics to continue in the basic text. For a while after taking up the work in the primer, it is best to use the same book for both reading periods. A little later, however, a book for each period should be used. As soon as the primer has been completed, the first book of the series ought to be taken up preferably in the morning period, and as many books read in the afternoon period as can be mastered. Students can often read much more than they do, if only given the opportunity. During the first year in school the class should read at least three primers and three first readers. This surely is a conservative number in view of the fact that some schools read over thirty, as already noted. It is imperative that the teacher understand the plan of the series used. Some plans have the primer and the first reader for the first year's work; others have a first and second book for the first year; still others, a primer only for the first year and a first reader for the second year.

Second Year. It is well to begin with a reader that is a little below the children's maximum ability at the end of the first year. Read two or three first readers, preferably sets not read before in the first year's work, and at least

four second readers during the year. This number should easily be read, if the first year's work has been well done. Review and continue the work in phonics at first during the phonics period only, later with the reading period, if desired. Word drills and dramatization are as essential as in the first year's work. Children at this age need to act things out, and the value of dramatization as a means to good expression cannot be overestimated.

Third Year. Read two or three second year readers and three or four third year readers. Keep up the drill work in phonics. At the end of this year, students should have mastered the mechanics of reading. If they have not done so, it is well for the teacher to make a careful study of the situation, as it is probably not the fault of the student. Consult the books suggested for supplementary reading as well as the lists for group reading. Try to get some of these for the library and encourage the students to read them outside of class work. The teacher who can cultivate in her pupils a love for good reading has done her part. One great educator said, "If you teach a child how to read without teaching him what to read, you have put a dangerous weapon in his hands."

SECOND DIVISION WORK (4-5 years)

As already intimated, the two classes of this division should be combined. Each class will then have just twice the time that it would have if they were not combined. Since the students should know the mechanics of reading when they enter the Second Division, it makes little difference which half of a given list of books they read first. Plan to read at least a dozen regular and supplementary readers during these two years. Continue with the books of the same set you were using in the First Division, as

several of these will undoubtedly have six or eight books in a series. Do not allow the students to get the false notion that they have been put back in case they read from books below their grade. In fact, it is usually best to begin the year's work in reading with a book or two below grade. For this division, I would suggest about two third readers, six fourth readers, and six fifth readers. Following this plan, the students would read one third reader, three fourth readers, and three fifth readers each year. Much additional supplementary reading can be given in this division, if the group reading material is available. If students are not familiar enough with phonics, give them the phonic drills with the First Division, or by themselves, as most convenient. Continue with dramatization, and have the students memorize several selections from literature, unless it seems best that they should do so in the language work.

THIRD DIVISION WORK (6-7 years)

The two classes of this division recite together, as suggested for the Second Division. From twelve to fifteen books should be read during the two years, reading one half of the list the first year, and the other half the other year. Some of these books will probably be the advanced books of the regular readers. The rest should be classics. This division will be able to read a great many of the classics in the group reading list. Continue memorizing literary selections and drill for expression. It is well for the teacher to remember that from seventy-five to ninety per cent of the students in this division will never get beyond these grades in school. They are, therefore, getting their preparation for life rather than for high school. Review phonics even in this division. If the students stumble in their reading, special drills for expression can be put on the board and

on charts, to overcome mechanical reading. They should also be encouraged to do a great deal of silent reading.

I have already referred to the fact that one school in Minnesota plans to read an average of thirty books in each of the lower grades, annually. I believe the list of books read will be of interest to teachers. The books used in the first four grades last year are here given. It will be noticed that the students of the third and fourth grades were combined. This is worthy of mention, because some teachers think it is impossible to combine even the fourth and fifth years as suggested in our Second Division work.

BOOKS READ IN ONE YEAR

First Grade

Ward Primer	Art Literature I.
Ward Additional Primer	Palmer Method Primer
Expression Primer	Hiawatha Primer
Laurel Primer	Philip at School
Little Red Hen	Brownie Primer
Wide Awake Primer	Lights to Literature I.
Wide Awake I.	Dramatic Reader I.
Child Life Primer	Child Lore Dramatic
Howe Primer	Child Life I.
Ward Additional I.	Child Life II.
Blodgett Primer	Howe I.
Reading Literature Primer	Polly and Dolly
Ward I	Overall Boys
Reading Literature I.	Cat That Was Lonesome
Sunbonnet Babies	Mouse That Lost His Tail
	Circus Reader

Second Grade

Ward Primer	Pig Brother
Ward Additional Primer	Polly and Dolly
Ward I	Tommy Tinker
Ward Additional I.	Stepping Stones III.
Child Life II.	Mother Goose Village
Reynard the Fox.	Nature Myths
Ward II.	Dramatization of Hiawatha
Child Lore Dramatic	Dramatic Reader I.
Ward III.	Great Americans for Little Americans
Philip at School	

Second Grade—Continued

Brownie Primer	Dramatic Reader II.
Little Red Hen	Early Cavemen
Circus Reader	Tree Dwellers
Howe II.	Lodrix
Stepping Stones II.	Children of Cliff
Eskimo Stories	Old Mother West Wind
Boy Blue and Friends	Howe III.

**Third and Fourth Grades
(Combined)**

Mother Goose Village	Boyhood of Washington
Classic Myths	A Perfect Tribute
Children of History I.	In Fable Land
Children of History II.	Dramatic Reader
Howe III.	Child Life III.
Merry Animal Tales	Viking Tales
Adventures of a Brownie	Wagner Opera Stories
Old Mother West Wind	Four Footed Friends
Four Old Greeks	Boyhood of Lincoln

Note: The above list is for the first seven months only.

OUTLINE IN PHONICS

The outline here suggested is not expected to take the place of a method reader. The importance of studying the teacher's manual for the basic text or method reader used has already been emphasized. The order of this outline will probably not coincide with that of the phonics given in the teacher's manual. It seems logical, and may be used to supplement the manual.

The work in phonics should be started about the time the students begin to read in the book. The importance of special charts for phonics, rather than having that work during the reading period, cannot be too strongly emphasized. Phonics is mechanical, reading should not be. Ordinarily, it is considered that students should be able to complete phonics in about a year and a half. It will not be difficult, therefore, to master this outline by the time they have finished the First Division work. If they have not done this, I would say it is the fault of the teacher rather than of the student.

I. Classes of Phonic Keys

1. Short keys
2. Long keys
3. Consonant keys
4. Sight keys

II. Order of Presentation

1. Short vowel sounds and some consonant sounds
2. Short keys and the rest of the consonant sounds after they are needed
3. Families with short keys (made by combining consonant sounds with short keys, thus b—at, etc.)
4. Long vowel sounds
5. Long keys (formed by adding 'e' to the short keys)
6. Families of words with the long keys
7. Consonant keys
8. Sight keys
9. Keys with more than one sound

By the end of the first year the students will probably have gone at least as far as six or seven, in order of presentation. Much drill must be given on the different families of words and on making out new words. In the second and third years review and drill with emphasis upon the families and new words. Then take up the last three topics, and begin to teach diacritical marks. Students should be ready for the formal study of the dictionary as soon as they enter the Second Division. They should then be asked to buy a good dictionary, and systematic lessons should be given on the way to use it.

Reading Sets

Method Readers Suitable for Basic Texts

The Gordon Readers	Aldine Readers
The Beacon Readers	Lippincott's Readers
The Ward Series	Baldwin & Bender Readers
New Progressive Road	

Supplementary Readers

Jones Readers	The Elson Readers
Carroll and Brooks	Free & Treadwell Readers
Lights to Literature	The Brooks Readers
The Health Readers	The Wide-Awake Readers
Language Readers	American School Readers
Williams' Choice Literature	The Howe Readers
Sprague Classic Readers	

CHAPTER X

LANGUAGE AND LITERATURE

Language is one of the subjects too often slighted in the rural schools, perhaps because the teacher is least familiar with what to teach and how to teach it. The aim of this course is to assist students to use good English both in oral and written expression, and to create a desire for the best in literature. Experience has proved that technical grammar will not do this. Hence, all the work in the first two divisions and a large part of that in the third must be something else than grammar.

If the teacher were not so used to hearing incorrect expressions from the students and receiving poorly written composition papers, she would be surprised that a child could not learn to use good English in one year. The method of teaching language must surely be inefficient, when even high school students often fail to speak correctly and are still worse in written work. Much of the written work should never have been done. Teachers sometimes give written lessons with no intention of ever reading the papers, thereby committing a crime against good teaching. No paper should ever be written unless it is to be the very best work the student can produce, and unless it is to be carefully read and criticized by the teacher, and returned to the student for correction. This cannot be done every day. Better by far have a written lesson once a week or even every two weeks and demand efficient work, and nothing but the best expression at his command should be accepted from any student in recitation work.

Language teaching is still more difficult, if the child is unfortunate enough to hear incorrect expressions at home.

Such may be unavoidable, but there is no excuse for the teachers who will allow children who do use correct forms when they enter school to become confused on account of the poor language heard in the schoolroom. Drill, drill, drill, and have some definite plan of drill. Drill must be the slogan of the teacher.

Until recently there have been but very few helps for the teacher in language. Since technical grammar has been driven from the grades to the high school, where it belongs, some really good language books are appearing. There are still on the market so-called language series that begin to teach grammar in the fourth grade. The teacher should become familiar with as many of the new books as possible before attempting to teach the work of the First Division where no textbook should be used.

The teacher should remember that the first requisite of good language teaching is to secure the interest of the children. Some teachers are natural story tellers; others must learn to be. Even a story well read, if it is properly selected, will hold the interest of the children. While a great deal of material is suggested for the first division work, it remains for the teacher to correlate these topics in such a way that there will be unity.

FIRST DIVISION WORK

The three classes of this division can easily recite at the same time, as the lessons are given by the teacher and reproduced by the pupils. One of the best ways to begin is to select some very interesting story full of action such as the 'Three Bears' or the story of 'The Little Half Chick,' and either tell it or read it well. As soon as the story has been told, select pupils from the class to act out the parts as the teacher retells it. Continue, then, until the pupils can

give it all, changing the children until all have taken part. Many good stories can be taken directly from the reading lesson and dramatized in the language class. So much excellent material is to be obtained from mythology and literature that there is no need of using anything commonplace in this work. The library should contain a few special books.

The aim of the language for this division is two fold: First, to create a love for good literature; and, second, to enable the child to express his own thoughts on subjects within his experience, as well as to express new thoughts that are brought to him through stories, songs, poems, pictures, etc. The first aim may be accomplished by stories read and told by the teacher, and the second by conversation, dramatization, oral reproductions, stories, and by definite questions and answers based on stories, pictures and nature studies. From what has already been said in the introduction, it is evident that the greater part of the work in the First Division should be oral.

There is a mechanical side in language as well as in reading. The things to be emphasized in this are correct forms of speech, enlarging the vocabulary, and correcting common errors in expression, also the use of capitals, such as at the beginning of a sentence and lines of poetry, I and O, and in proper names. These rules are all within the comprehension of the children, as they are using the forms from day to day. Other mechanics are the use of the question and quotation marks, the period and such other marks of punctuation as students will see in reading the stories that will be dramatized in the language lesson. During the last half of the work of this division, after the children have begun to write, margins, simple paragraphs, and elements of letter writing, should be taken up. If the teacher prefers to keep the work of the First Division chil-

dren separate from the second and third-year students of the First Division, she will find abundance of material in the topics suggested under the several heads for this division. Time should be saved by having all the classes of this division recite together. The following topics are suggested:

Common Objects. Conversation about toys, animals, plants, flowers, colors, or any articles in common use in the home and at school. Describe the position of objects in the schoolroom by the proper use of such terms as, on, above, under, left, right, before, behind, in the middle, and other similar words. Children will be delighted to tell about the playthings used at home.

Phenomena of Nature. Conversation about the sky, clouds, water, rain, hail, snow, rocks, soils, metals, grass, grains, weeds, insects, birds, etc. The sun, the moon, and the stars are also interesting topics under this head. Many of these can be studied at first hand and from suitable poems about nature.

Pictures. Prints in black and white, colored pictures, and those sketched on the blackboard by the teacher can be used. The pictures of the schoolroom should always be utilized in this way. Too often, schoolroom pictures are merely dust collectors. It is better to have one good picture that will really be an inspiration to all in the schoolroom than twenty such as those often found hanging on the walls. Small pictures can be used to advantage for individual work. The Perry pictures are good, and a sufficient quantity for this purpose can be obtained for a few cents. Encourage the students to talk freely about the pictures used, which, later on, may be made the basis for the written work in language.

Literature. Stories and poems. As already stated, the teacher should develop the art of story telling; but, until

then, read the selections well. Fairy tales, fables, stories of child life, stories of animals, and stories of great men and women may be used. Most of the modern primers have some stories that can be used in the work of this division. See that the students are given an opportunity to learn some of the great literary masterpieces. The idea used to prevail, that children could not appreciate literature, and attempts were made to rewrite the original in such form as they could understand. We now know this is a false conception. I have heard children of the second and third grades give the Children's Hour, poems from Eugene Field and Robert Louis Stevenson, selections from *Hiawatha* and similar literature from other authors, with as much feeling and expression as any grown-up could give them. A list of suitable selections for memorizing is given at the close of the chapter.

Dramatization. This is a very important and interesting part of the language work. Simple costumes can easily



Figure 9. Dramatizing a Christmas story in the First Division

be prepared for special events, for example, the Pilgrim hat, collar and cuffs for a Thanksgiving program. Although discussed under the head of reading, it is understood that a large part of this work should be done in the language period. Only stories full of action and interest should be selected. It is better to have the children volunteer for the work in dramatization than to assign them to the parts and ask them to learn something that they, perhaps, do not care for, as this would kill spontaneity, the very thing for which we are working.

Correct Forms of Expression. Constant drill on the use of such words as I, me, is, are, was, were, has, have, see, saw, seen, do, did, done, want, give, this, that, these, those, nothing, anything, come, came, write, wrote, written, know, knew, known, take, took, taken. Special exercises to prevent such incorrect expressions as "ain't got," "it is me," "it was them," "I seen him," "me and John will go."

Hygiene. Conversation about the human body, its use and beauty, how to take care of it, a simple discussion of foods, what to eat and what not to eat. The effects of stimulants and narcotics, such as tea, coffee and tobacco upon the growth of a child. Cleanliness as related to the face and hands, fingernails and care of the hair and teeth. Correct position of the body in sitting, standing and walking. Care of the eyes, ears and mouth. Infectious and contagious diseases, with special reference to their bearing on the health and welfare of childhood.

Food, Drink and Clothing. Lessons about bread, beef, mutton, milk, butter, rice, breakfast foods, fruits of different kinds and other products of food and drink suitable for children. In the study of clothing, lessons should be given on the raw material from which garments are obtained. Cotton, linen, woolen, silk, leather, may be taken

in order. A homemade collection of the raw materials and the manufactured products would be valuable.

Morals and Conduct. Conversation and stories to inculcate a spirit of kindness to one another, to brothers and sisters, parents and teachers; kindness to animals, and respect due to the aged and those in authority. Give training in polite and courteous manners, as well as polite forms of speech. Under this head, talks on the care and use of the school building, furniture, apparatus, books, and outbuildings, should be given.

Written Work. A small amount of written work can profitably be done in this division during the latter part of the second and third years. The tendency is to overdo this, however. Plenty of material for the written work can be found in the above outlines for the oral work. In addition, simple letter writing should be studied, as already intimated. The calendar will furnish interesting material for the days of the week and the months of the year. A new calendar should be made at the beginning of each month, and the old one taken down.

SECOND DIVISION

If the students have learned to read well enough so that they can get the thought from the printed page, there is no reason why some suitable textbook in language should not be introduced in the Second Division. If it seems best to use the book only during the last half of the year, review work from the First Division outline may be given during the first half. The two classes will, of course, recite together. Even if the book is used from the first, it is well to review those parts in which the class may be weak.

Great care should be used in selecting a suitable language series. Get one that will be true to name, and post-

pone the technical grammar at least until the grammar grades. On more than one occasion, teachers have called my attention to some splendid work in the intermediate grades in parsing and diagraming, to prove that students of those grades could study grammar and apparently understand it. I have never denied that they could. In fact, I am also willing to admit that the same students could reproduce figures in geometry and give the theorems, and recite in many other subjects that we never think of offering in the grades. Such things, however, are done at the expense of the fundamentals which they should be learning during these years. In every case where students were spending their time on these technical forms, I found them to be weak in oral and written expression.

A book that has enough material for the two years' work, may be selected for this division, or, if desirable, two books in the same series may be selected. The teacher should become familiar with the entire book before planning the work for the class, as she may need to omit some of it or have it studied in a different order. Watch for the faulty expressions in the oral work and keep up the special drills as long as drills may be needed. Get a copy of the teacher's manual for the language series you are using, and make good use of it. The newer textbooks will give for intermediate work such topics as: the study of pictures, story telling, letter writing, holiday and vacation games, nature stories, geography and history stories, adventures, home life, and others. Word drills may be given from the reading and other lessons, to increase the vocabulary. A study of the dictionary should be work for the language as well as reading classes. At least one suitable selection should be memorized each month. If the text used does not give sufficient work of this kind, consult the reference

list of some good school. As the First Division is the period of imitation, so the intermediate division is the habit forming period. It is well for the teacher to remember that the students will probably always use the same kind of oral and written language that they are using when they leave this division. Good English is, after all, largely a matter of habit. Habits formed during these early years are hard to break after children reach the grammar grades.

THIRD DIVISION

The sixth and seventh year students of this division will recite together. The first week or two may be spent in ascertaining whether more drill is needed in the work of the Second Division before continuing with the more formal work in English. As long as incorrect habits of expression exist, continue drilling and try to correct them.

If the students are to be given a year's work in grammar, it is best to have it divided and give half each year of this division. As already stated, it is better not to give grammar at all unless you are sure that the pupils already have that which is so much more necessary for them, the ability to speak and write good English. Most high schools now prefer a certificate in composition to one in grammar, in admitting students from the country schools.

It is best to use the same series of language books that is used in the other division. Plan to have at least one half of the work each year oral and written language, and, if any grammar is studied, use only the practical parts. Some very interesting discussions in constructions are possible in high school English, but they are out of place in the elementary schools. Many of the students of the rural schools will, unfortunately, never get any further in school work, and, therefore, the course in English should

be such as to give them the most practical help for their life work. For this reason, such topics as business letters, sending a telegram, taking notes, and debate work are of importance. Oral and written descriptions, how to select good books from the library, the ability to give talks before the school on current events, and knowledge of simple parliamentary rules, to enable one to take charge of a business meeting, are also important phases of the work for the Third Division.

DRILLS FOR EXPRESSION

The following drills for expression are suggested for the First and Second Division. Other suitable drills for this work should be selected by the teacher. An occasional exercise of this kind is proper even in the Third Division.

Flash Card Exercise

1. My! how tall you are!
2. Run, run, old dog!
3. Hurrah for the flag!
4. Be quick mamma!
5. Please let me go.
6. A good dog.
7. Run, dog, run!
8. What a dirty face!
9. All aboard! All aboard!
10. A black dog.
11. A strong dog.
12. Jump, dog, jump!
13. Quick! Jack! Quick, I say! Jump over that candle-stick!
14. Why don't I? Don't you see that I am the corporal?
15. Don't, boys! Don't hurt the poor turtle!
16. Bang! Bang! Fire crackers are jolly fun!
17. Heave ho! Up with it, men!
18. Boys, do you see how well George has done his work?
19. Pig, pig, pig! Come here, little pig! Come and get some bread.

The above expressions should be printed separately on suitable cards to be used as flash cards for rapid drill work.

Five Little Rabbits

Five little rabbits went out to walk,
They liked to boast as well as talk.
The first one said, "I hear a gun;"
The next one said, "I will not run;"
Another one said, "Let's stay in the shade;"
The fourth one said, "I'm not afraid."
Bang-bang went a gun!
And they ran every one.

Five rabbits may be cut out of card board and pasted on a chart.
Some cotton may be used for their tails.

The Five Kittens

Five furry kittens waiting in the house.
Softly! Softly!
They think they hear a mouse;
The white kitten says, "Be still!"
The grey kitten says, "We will!"
The brown kitten says, "Oh, where?"
The striped kitten says, "Take care!"
The black kitten says, "Right here!"
"Squeak!" went the mouse,
And they all ran under the house.

Pansies

There's something good about pansies
That's worth your while to know;
The more they are plucked and given away
The more they are sure to grow.

Henny Penny's Opinion

"Henny Penny, I wish you'd lay
An Easter egg in your nest to-day.
Henny Penny, what do you say?"
"Cut, cut, cut, Ka-da-cut!
The very idea of a colored shell!
I should die of shame if I laid one—well,
When I lay an egg I never tell—
Cut, cut, cut, Ka-da-cut!"

A Secret

"I know something, but I sha'n't tell,
Cause the mother bird whispered it just to me,
What she'd hidden away in the top of the tree!
And by-and-by when the birdies are old—
Oh! dear me; I've gone and told."

Library

College of St. Scholastica

Brindle Cow

Our old brindle cow stands by the shed,
And this is the way she shakes her head;
Then the bell on her neck makes such a noise,
It frightens some little girls and boys.
Now look at her eyes so brown and kind,
And a gentler cow we could not find.
What is she good for? Why, don't you see?
She gives us the milk we have for tea.

Scaring Santa Claus

Do you know what I'd like to do when Santa Claus comes knocking?
I'd like to squeeze up a little, and hide behind my stocking,
Then, when he opened his packet, I'd say "Boo!" just for fun,
And maybe 'twould scare him so that he'd leave his presents and run!
Oh! wouldn't that be fun!

Three Little Owls

Three little owls one cold winter day,
Crept into a barn half full of hay;
On the shingles, like bullets, rattled the hail,
And the wind blew around with a mournful wail;
It shook the doors till the owls cried, "Whoo-oo!"
And the wind whistled back, "Yoo-oo."

Blue Jay

Oh, Blue Jay up in the maple tree,
Shaking your throat with such bursts of glee;
How'd you happen to be so blue?
Did you steal a bit of the lake for your crest,
And fasten blue violets into your vest?
Tell me, I pray you,—tell me true.

In many schools memory work is not required as much as it should be. Even though the child may not understand at the time all he is memorizing, these stored up treasures will become working capital some day. The First and Second Division students will find it easy to commit to memory. The list for the First Division suggests a poem for each month for the three years. The order can be arranged to suit the teacher. At the same rate only two thirds of the other two lists would need be selected for the Second

and Third divisions. It is difficult to find so many classics in one series of books, but the reading sets and language books furnish most of them. The Williams' Choice Literature Series contains many of those suggested.

A few nursery rhymes are given, as it is sometimes difficult for a teacher to find them. Many children will probably know most of them before coming to school. So much the better, as they will be treading on familiar ground, and the foundation for language work will be laid. Teach the memory work to the whole division at once, and let them all recite at once, the teacher giving the selection with them at first for expression. Vary this by having a pupil stand in front and lead the recitation. Occasionally call on an individual for a selection.

If it does not seem possible to have all these poems memorized, the teacher may select as many as can be learned, and the rest should be carefully read and studied. Every student has a right to part of the world's great literature, before leaving the elementary school.

NURSERY CLASSICS

Rock-a-bye Baby

Rock-a-bye baby, on the tree top,
When the wind blows, the cradle will rock.
When the bough breaks, the cradle will fall.
Down will come baby, bough, cradle and all.

See-saw Margery Daw

See-saw, Margery Daw,
Johnny shall have a new master,
He shall have but a penny a day,
Because he won't work any faster.

Jack Horner

Little Jack Horner sat in a corner
Eating a Christmas pie.
He put in his thumb, and took out a plum,
And said, "O, what a good boy am I!"

Hickory, Dickory, Dock

Hickory, dickory, dock,
The mouse ran up the clock;
The clock struck one,
Down he did run.
Hickory, dickory, dock.

Little Miss Muffet

Little Miss Muffet
Sat on a tuffet,
Eating curds and whey.
Along came a spider,
And sat down beside her,
Which frightened Miss Muffet away.

The Little Pigs

This little pig went to market,
This little pig stayed home.
This little pig had roast beef,
This little pig had none.
This little pig cried, "Wee, wee,"
All the way home.

Jack and Jill

Jack and Jill went up the hill
To fetch a pail of water.
Jack fell down and broke his crown,
And Jill came tumbling after.

Pat-a-cake

"Pat-a-cake, pat-a-cake, baker's man."
"So I will, master, as fast as I can."
"Pat it, and prick it, and mark it with T."
Put it in the oven, for Tommy and me."

Little Bo-peep

Little Bo-peep has lost her sheep,
And doesn't know where to find them.
Let them alone. They will come home
And bring their tails behind them.

Tommy Tucker

Little Tommy Tucker sings for his supper,
What shall he eat? White bread and butter.

A Song of Sixpence

Sing a song of sixpence,
A pocket full of rye.
Four and twenty black birds,
Baked in a pie.
When the pie was opened
The birds began to sing.
Wasn't that a dainty dish
To set before a king?

Pussy Cat

Pussy cat, pussy cat,
Where have you been?
I've been up to London
To look at the queen.
Pussy cat, pussy cat,
What did you there?
I frightened a little mouse
Under her chair.

Ding, Dong, Bell

Ding, dong, bell! Pussy's in the well.
Who put her in? Little Tommy Green.
Who pulled her out? Big John Stout.
What a naughty boy was that,
To drown poor pussy cat,
Who never did him any harm,
But killed the rats in father's barn!

Old Mother Hubbard

Old Mother Hubbard
Went to the cupboard
To get her poor dog a bone;
But, when she came there,
The cupboard was bare,
And so the poor dog got none.

CHAPTER XI

WRITING, SPELLING, MUSIC AND ART

WRITING

In this age of typewriters and other machines to do the work formerly done by hand, it is sometimes said that there is not the need for writing that there used to be. There is a growing demand, however, for clerks, stenographers and others who can write a plain, business hand. Writing is one of the "three R's" that is again receiving, and rightly so, a great deal of attention.

Vertical writing has come and gone. The day of the old time copy book has passed. In fact, the revolution in teaching writing is apparently over, with the victory on the side of the muscular movement. The copy book never produced good writing. Occasionally a good teacher of penmanship would put enough enthusiasm into the work to get individuality on the part of the students. More often, however, the pupil would follow the copy for his first line or two, and then use his own preceding line for the copy. This habit gave the poorest line at the bottom of the page, where the best should have been.

Muscular movement writing always produces individuality and an easy movement. The fingers should not become cramped nor the arm tired after writing for a longer time than usual. It is the natural method.

Proper position is a prerequisite to good movement. Students who fail to form a habit of correct position seldom become good writers. The pupil should sit facing the desk, with the feet squarely on the floor, the back straight and leaning slightly forward, shoulders up and head erect.

The forearm should rest lightly on the desk, the right elbow near the corner of the desk. The left hand holds the paper in the proper position. Thus it can be seen that the pupil sits at the right side of the desk, as far over on the seat as possible. The penholder should be held loosely in the fingers, the tip of the first finger being about one inch from the pen point, the thumb opposite and a little higher. The third and fourth fingers rest on the paper and slide along as the hand moves from left to right. The paper is placed at such an angle as will give the desired slant to the writing when the pen is moving almost in an up and down direction. A slant of eighteen or twenty degrees is about right.

The writing materials should be good. Poor paper is a serious handicap. Uniform paper about eight and one half by eleven inches, a good holder, and a medium pen are suggested. Each student should have a blotter, of course, and a large envelope to hold the finished specimens and to keep them clean and in order.

The Palmer Method of muscular writing is one of the best now used in business colleges and schools. A small, paper covered textbook may be obtained for the pupils. It is in no sense a copy book. Full directions for position and physical exercises for relaxing the muscles precede the lessons in writing. Any teacher using this system is allowed a free correspondence course and should find no difficulty in becoming a good teacher of penmanship in a short time.

There is some difference of opinion as to where to begin the use of the pen and ink. Some begin in the first year, some in the second and some in the third. In any event the student should have learned to use pen and ink before finishing the First Division. Most writing methods have cards for the primary students. The method referred to above has a small book for the children of the first year or

two and preceding the work in the regular textbook. Students should be encouraged to practice outside the regular class work. Writing contests and small prizes or some other recognition for good work will stimulate interest.

FIRST DIVISION

Great care should be taken to have pupils get the correct position. The position of the body and the arm movements should become habitual. "Make Haste Slowly" is a good motto to follow in beginning this work. After the proper position has been secured, and not until then, begin with the use of ovals, making very light lines and gradually working up to the required rate of speed. Each lesson should be preceded by physical exercises for relaxation of the muscles. A half-dozen things under position should be kept in mind by the teacher. They are the feet, back, arms, hands, paper and penholder. The last should be held in such a manner that it will point back of the right arm about half way between the shoulder and the elbow. Spaces should be marked off with dots on the paper. Plan to fill these spaces with just so many ovals or lines according to the exercise. At first the teacher should do the counting, but gradually the student should learn to do this for himself. Count numerically part of the time, but use words when they will be helpful, as, light, light, light, light, and close, close, close, close. Keep up the counting, and, at the same time, by the use of such words give directions.

Blackboard work should be done, but not over-done. A good plan is to send about half of the class to the board while the other half do the same work at their seats. Have pupils draw three straight lines, free-hand, on about the same level as the eyes. Mark off spaces and fill the first one with up and down strokes and the second with ovals.

Try to make eighty strokes in eight inches of board space, also the same number of ovals. When half of the writing period is up, have those at the seats exchange with those at the blackboard. About four hundred up and down strokes should be made in two minutes after a reasonable rate of speed has been required. Work for movement and speed at first. Get these, and the letter formations will take care of themselves a little later. By the beginning of the second year students should be able to write their names and a few simple words by means of the muscular movement. The exercises and drills in the textbook used should be carefully studied by the pupil before they are applied in the writing lesson. Students should be taught the letter formations and the writing of words systematically from the first. Some teachers get good work in drills, but fail totally in getting students to apply these to their writing. Do not make the mistake of expecting much written work from this division in their other subjects. It is a common fault among teachers to require too much written work.

SECOND DIVISION

Continue with the drills for position and movement and increase the speed. In this division special emphasis should be laid upon the application of movement to all the letter forms. This is the most difficult part of the teaching of penmanship, and can be obtained only by applying the drills used to the actual handwriting of the student. A failure is seldom made in the drill work; it is usually in the application. The drills in movement are merely aids in writing and must always be regarded as the means to an end but not the end. By the time the student finishes this division he should be able to use muscular movement in all of his written work.

THIRD DIVISION

Relaxation exercises and drills should be given for a minute or two before each written lesson. Occasionally send half of the entire school to the blackboard while the other half use pen and ink at their desks. Comparison of the same work will often stimulate interest and create a certain rivalry between the divisions of the school. Keep up the counting to develop speed and uniformity. The teacher should be able to illustrate all the writing lessons at the blackboard. Any new drill or its application must be illustrated. Do not be misled in thinking that the teacher can get results in something she herself can not do. It is very necessary that the teacher become entirely familiar with the manual of whatever writing system she may be using. If possible, ten or fifteen minutes a day should be spent on actual practice before demonstrating the work at the blackboard.

It is difficult to give any definite directions for just the amount of work to be covered in each division, as so much depends upon the length of time the pupils have been using muscular movement, upon the competency of the teacher, upon the ability of the class and upon the amount of time that can be devoted to the subject daily. If the method mentioned above is in use, the student should be encouraged to work for buttons offered as prizes for good work, and for the diplomas given when the student becomes proficient enough in his handwriting and has a working knowledge of the textbook in writing.

SPELLING

Spelling, unfortunately, has not enjoyed the popularity that it once had. In the good old times of our grandparents the spelling match and the singing school were close rivals of the quilting party and the husking bee. It

was indeed an honor to be the best speller. While spelling was useful in those days, it is a necessity now. There are undoubtedly more good spellers in the schools now than ever before, but there are also more poor spellers.

Interest is the keynote. Spelling is drudgery to most students, if the lesson always consists of a list of written words. Learning to spell is largely a process of the memory. Some children are eye-minded. Such will get their spelling lesson best by studying the printed page and writing the lesson. Others are ear-minded. These will best get the lesson by spelling the words aloud and by hearing others spell in an oral recitation. This difference shows the necessity for both oral and written work. There would seem to be no excuse for the pupil or for the teacher who will allow a pupil to leave the elementary school unable to spell the words he uses in ordinary conversation. Many a boy or girl who could not spell in school goes into a place of business to work, and soon learns to spell there, because the position would otherwise be lost. The need is seen and the person becomes interested at once. It is doubtful whether interest can be created by keeping children after school every day, if they miss a word or two. Of course a good teacher is never guilty of this practice, but there are many others who are. Make the school work more like real business work.

Simplified spelling has been receiving more or less attention by educators and editors. The agitation has undoubtedly done much good, but few definite results have yet been attained. While the Committee on Simplified Spelling made many sensible recommendations, many of the leading publications do not yet use the new spelling, and few publishers feel that the matter is sufficiently settled to warrant their using the revised forms. It can, perhaps,

hardly be expected that adults will change from the way they have been accustomed to spell. This matter should be taken up in the schools and all simplified spelling recognized by authorities should be taught there.

Special devices are sometimes used for keeping up interest in spelling. An honor roll on which the names of the best spellers are placed at the end of each week or month is one of these devices. Encourage students and parents to inspect names on this roll. The old-fashioned lines for oral work, allowing students to go to the head of the class, is still interesting. It is always best to hold students responsible for observing mis-spelled words. For example, if the person at the head of the line misses a word, the teacher says nothing about it, but pronounces a new word to the next pupil. If this person notices the mistake of the first and spells it correctly, he takes his place at the head of the line and the third student spells the word pronounced by the teacher. If the second does not notice the mis-spelled word, the first person in the line that notices it and spells it correctly, takes his place at the "head." Sometimes a mis-spelled word will be overlooked by several students in the line and then spelled correctly by some one near the "foot," who goes ahead of the first one who mis-spelled the word. This makes the game interesting, even exciting at times. Students are always interested in "spelling down." They should be allowed to spell down as frequently as once a week, as an excellent means of conducting oral drills. A banner may be made and given to the division making the best average for the week. As soon as another division has a better average, it gets the banner. Spelling matches between the schools should be encouraged, letting a team of three or five of the best spellers in the school compete with a similar team from a neigh-

boring school. If these matches are held in the evening, parents will have opportunity to be present. The schools could compete for the best specimens in writing at the same time, if desired. Such contests would be an excellent way of interesting the community.

State contests in spelling are assisting in the spelling movement in some sections of the country. It was my privilege to act as one of the judges recently, in the Minnesota State Contest where the best spellers representing about sixty counties competed for prizes offered by the State Fair Association. A written contest list of one hundred words was first given. Representative words were taken from a half-dozen spellers, no catch words being used. Those handing in perfect papers were required to write a new list, until one person had the highest score. Naturally each list of words was made a little harder than that which preceded it. After the written work was over, there was held an old-fashioned oral spelling down contest which took about an hour and a half to "floor" the best speller. Before the state meeting, preliminary contests had been held in the counties and the representative at the State Fair was the champion in his own county.

A spelling book in the hands of a pupil is indispensable. Some teachers prefer to select their own spelling lists from other subjects. It is well to take words from the geography, history and reading lessons for supplementary work in spelling, but it is a waste of time not to use a spelling book. There are a few rules in every speller that the students should be required to memorize. It should be remembered, however, that spelling can not be learned by rule. It is a memory subject and as such should be emphasized during the memory age. Students should be taught how to study a spelling lesson. There will probably always be

words in the list that some pupils can already spell. The student should check these words and spend no time on them.

Dictation used to be given as a part of the work in spelling much more than it is at present. It is one of the best ways of correlating spelling with language. Capital letters and punctuation as well as the spelling are emphasized in dictation. Suitable selections may be taken from the reading lessons, if there are not enough in the spelling books.

Dictionary work should always be a part of the course in spelling. In connection, a definite time should be set aside for learning the use of the dictionary. Students often waste time looking up a word, because they can not use the dictionary to good advantage. A little pamphlet "The Dictionary Habit" by Cody, is excellent for such study and may be obtained free from the publishers of Webster's Dictionary. A pamphlet should be secured for each student of the Second Division. Diacritical marks, prefixes, suffixes and root words, should all be given attention in connection with the language lessons.

Three divisions are sufficient into which to divide the entire school for the work in spelling. I have seen eight spelling classes in a rural school where three would have been plenty. The first year students should not have any spelling, the next two may be combined for the First Division. The four and five-year students will constitute the Second Division and the others the Third Division. There should be but the one written lesson for all three divisions. If the lesson averages ten words for each division, a period of ten minutes is plenty for the spelling recitation. The lesson may be conducted as follows: The teacher pronounces a word for the First Division. The next word pronounced is for the Second Division and the third word is for the Third Division. By this time the

First Division word has been written and a new word can be pronounced. The Second and Third Divisions' words follow in order. In this way all thirty words have been given to the three classes in the same length of time it ordinarily takes to conduct one spelling lesson. A teacher with seven or eight grades of students must look for special devices such as this to save time.

FIRST DIVISION

No spelling books should be used. Lists of words may be selected from the reading classes and placed on the board. Do not make the mistake of giving too many words. Three new words learned each day will produce a list of over five hundred words learned during the year. Enough review words may be given each day to make the total number ten, if this is desirable. When the written work is being done, see that the students write to the best of their ability.

SECOND DIVISION

Spelling tablets for the written work should be used in both the Second and Third Divisions. See that these tablets are uniform. Sheets should not be torn off after the written lesson, but should be saved for oral review. An oral spelling period of twenty minutes once a week is provided in the suggested program. The words from several written lessons can be used at this time. Any good speller may be used in this division and the work followed in the order given. Begin the use of the dictionary. Give supplementary spelling words from other lessons and continue by assigning lessons from the spelling book three times a week and supplementary words twice a week.

THIRD DIVISION

Any spelling book may be used, beginning with work for the sixth year and completing the text. A business speller similiar to those used in business colleges is preferable to the ordinary grade speller for this division. Such a book is complete in itself and gives only such words as are used in ordinary business. More emphasis is laid on learning rules of spelling, the derivation of words and dictation. Try to get students of this division to take pride in perfect spelling lessons. They should realize that, if they do not learn spelling correctly before finishing the common school, they will probably always be poor spellers. The contests with neighboring schools and the county and state contests referred to above should be of interest to these honor students.

MUSIC

The course in music is offered for those who desire to teach this subject in the rural schools. It is sometimes thought to be almost impossible to get satisfactory results in music without a special teacher. This idea is only partially true. Music is being taught with excellent results in some country schools, where the teacher has a working knowledge of music and is enthusiastic over it. If music is not taught as a regular subject, then rote songs should be given for morning exercises, as the children should be encouraged to sing. On the other hand, it is a mistake to teach rote songs, if they are learning to read notes. Good music reading, like other reading, can be acquired only by putting into practice the principles learned.

The mechanics of music can be made even more interesting than the mechanics of reading or language. The most successful of the special devices for teaching music to

young children that has come within the observation of the author is the Congdon series. Each child is furnished with a desk chart and disks. The chart is merely a narrow piece of cardboard containing a staff. The small, black disks are used at first to locate the lines and spaces as called for by the teacher. Later, they are to be used as notes and placed as directed. As soon as one chart is finished another is taken up.

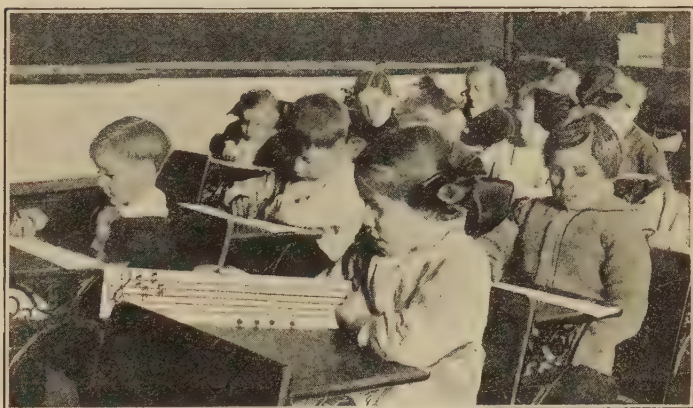


Figure 10. Teaching music to first year students by the note method, showing the charts and disks.

A serious mistake often made in teaching music is to have all the pupils sing together. Just as concert reading in English is wise occasionally, so chorus singing is desirable; but the student will learn to sing, as he learns to read, only by individual work. This will seem hard at first, but, if the teacher is both insistent and persistent, the child will soon think no more of singing alone than he thinks of reading alone. Good chorus work can come only from good individual work.

The scales should be taught with the mechanical work of the charts, singing downward first. Have both class and individual singing. An interesting way to teach the scales is by scale songs. That is, starting with the tone of upper "do," sing the words and syllables of the scale song to lower "do" which will be the end of the first line. Return in the same manner, from lower to upper, using the words of the second line. Often before they realize it, children, who think they cannot sing the scales, have them learned by using the scale songs. A few are here suggested. The teacher can add to the list for variety.

Scale Songs

Hear the school bell call us to-day.
"Come, O come!" now it seems to say.

Swing-ing high, swing-ing to and fro,
High up, up in the air I go.

Thanks-giving day will soon be here;
It comes around but once a year.

If I could only have my way,
We'd have Thanks-giv-ing ev-ry day.

Birdies in Winter must be fed;
Let the children scatter their bread.

Snow flakes falling, snow birds calling,
"Wint-er is here."
(do, mi, sol, do.)

Monotones are largely imaginary. "Out-of-tunes" are frequent, especially in lower grade pupils or those who have not studied music. Probably only two or three real monotones will be found in two or three hundred children, but more than half of a room may not be able to carry a tune,—"out-of-tunes." The teacher must test each child at the first of the year to determine where he should sit for music.

"Out-of-tunes" can usually be corrected in a short time, and even monotones can always be cured in time.

The whole note, half note, and quarter note should be taught during the first part of the course. As soon as the scales are learned, the child makes "pictures" of the tones and calls them notes. Make all the mechanical work play at first.

A music primer should be introduced the second part of the first year, and a series of music readers follow. The pupils are held responsible for counting the time from the first. Blackboard and written seat work should accompany the other work.

The school may be divided into three divisions for the work in music as in the other subjects. After songs have been learned by note by the advanced divisions, they may be sung by the entire school, the First Division children learning them by note. The work suggested for each division follows:

FIRST DIVISION

Material Used: Congdon's key desk charts and disks; the "Congdon Primer Number One," some paper with lines and spaces for written work and one or two simple music readers for supplementary work.

Time for Recitation: This will depend upon the amount of time that can be profitably given to music in a small school where all grades of work are not represented. More time may be found for such work as music and drawing than in a large school. If from ten to fifteen minutes a day, twice a week, can be devoted to the work, it will be well worth while to introduce music.

Seating the Pupils: Always place the monotones and "out-of-tunes" in the front seats. Those who can carry the

tune should be seated in the rear. The students in the front seats will not disturb those who can sing, and they will be encouraged by hearing the others who are back of them.

Voices: Keep the voices soft and the tones sweet. Do not allow any loud singing or one or two students to be heard above all the others.

Order of Presentation of the Work: When the subject is introduced all of the First Division pupils should study the charts and disks. Teach the child to place a disk at the call of the first line, second line, etc., then, using the same chart, the spaces may be called in the same manner and the disks placed. After the lines and spaces have been learned in this way, it is well to mix them and call either lines or spaces. It will be found that students are very fond of this kind of work and the mechanics of music become simple. The scales should next be taught, beginning with upper "do" and singing downward at first. The scale songs suggested above should be used in teaching scales. Have individual singing as well as class singing.

Using chart number two, teach the use of the clef sign. Use "key of F" chart and ask the pupils to tell the difference. Have a child go to the board and draw the flat sign. Ask another child to tell where "do" is found on this chart. Place a staff on the board and ask the pupil to draw a disk in the "do" place. Do not allow students to call the disks "notes." Teach intervals by "rote" and have pupils place the disk and sing after the teacher. When the tonic chord has been learned, the pupils should be required to sing alone. The child may be asked to go to the board and point to tones on the staff and sing both tones and scale songs. While one child is at the board doing this, those at their seats may place the disks on the desk charts. Proceed in this manner through several scales. The scale songs may be varied by

singing in "long tones." Require the pupils to beat four times with the pointer finger of the right hand; then use "half tones" and "quarter tones." Make pictures of these tones and call the pictures "notes." Use numerous scale songs. Invent some to suit the day on which the lesson is given. The children will feel as if they are playing a game; but, if the work is properly taught, they will be mastering the mechanics of music that the older student usually finds so hard and distasteful.

After about a half a year of work as outlined above, the student should be ready for a music primer. Have the books laid flat open on the desk and have the pointer finger of the right hand ready to beat the time. Begin each song by individual work. Start with the child in the back seat and at the same time have the pupil in front of him stand and be ready to sing when the teacher says "next."

Make no comment on the singing; but, when one phrase has been sung correctly, have the entire class sing. Say nothing about the time signature, unless a pupil notices it. In that case it may be explained. Continue with the work from the primer for the balance of the school year. By the end of the first year after music has been introduced into the schools, the children should know the "pictures" of the whole note, half note, and the quarter note and how many beats for each. The outline just given is that usually covered during the first year in a graded school. It should constitute the work of the First Division for the first year.

The second year work of the First Division should begin with a review of the mechanics of the first year. The beating of time should be carefully worked out. Do not allow the least inaccuracy in time. Tones will probably not be perfect at first, the class may be out of tone, but they need not be out of time. Every pupil probably feels rhythm,

but he must be taught to see it. It is well to call attention to the new steps, but ask pupils to show them to you. More written work should be done at the board and seats. Do not allow students to take books to the board, as the work there should be either from memory or original. The teacher should work hard with the "out-of-tunes" and "monotones." Have them sing alone frequently, and then let other children who can carry the tune assist. In order to make the students independent, the teacher should do as little singing during the music recitation as possible. At the morning exercises, however, the teacher should lead.

Individual singing should be emphasized during the latter part of the course for the First Division. At least a half of the music period should be devoted to this. The teacher should work for accuracy and pure tones. Dictation exercises in music writing may be given once a week.

SECOND DIVISION

If the students of this division have not studied music, they must first take up the work as outlined for the First Division. In fact, the entire school can take this work together when music is first introduced. As the mechanics should have been learned in the First Division, most of the time of the Second Division can be given to two and three part singing as outlined in any good music series. Aim to establish a perfect knowledge of note values and intervals. Carefully test each voice before assigning a pupil to his part in the part singing. Use the same plan in having the reading and singing done as in the First Division, that is, begin with the students in the back seats. Four pupils will be standing at once, two singing and the other two ready to sing. When three part work is taken up, three will sing and three will be standing ready to sing.

The real names of lines and spaces may be taught in this division, as well as the keys by their proper names. Dictation exercises and simple composition should be required. All monotones can very probably be cured before they reach this division, and will give little further concern.

THIRD DIVISION

Two and three part singing from the music books should be emphasized, if the students are old enough. Even four part work may be studied. If there are a few boys fourteen or fifteen years old, they will enjoy learning to sing the bass. Some supplementary leaflets and music books should be obtained for this division, if possible. Encourage part singing at morning exercises, school programs and special entertainments held occasionally in the evening.

A mark for music should be given the student, the same as for any other subject. This will encourage him and the parent will be able to know what progress is being made, as the mark will be seen when the report card is signed. Finally, the success of a course in music in the rural schools will depend upon the enthusiasm and ability of the teacher.

ART

The fact that few rural teachers are artists is no reason why the pupils cannot be given sufficient instruction in art to enable them to appreciate aesthetics. If a full program will not permit regular class work, much can be done incidently and by correlation with other lessons.

Beauty is universal. It is always a unit and is seen with an unfocused eye, and the test of beauty is to ignore its parts and see the whole. Parts of a landscape should be studied technically and separately, but later the stu-

dent must learn to unify and see the entire scene within the field of vision. He becomes big when he can lose the parts and see the unit. Young children may be taught many things in linear perspective by studying pictures containing roads, fences, telegraph poles, etc. They can also readily be taught that objects change in the loss of character in increased distance. Older pupils will learn the atmospheric changes in color by increased distance.

Outdoor work in spring and fall is best. Drawings of a house, barn, shed, haystack, corncrib, hoghouse, tree, or a simple landscape may be presented once a week, and part of a class period used for criticism. This should be constructive, so the pupils will not be offended, but rather glad to find wherein they lack power.

Silhouettes of plants behind the curtain, and brush silhouettes of poses are good. One basis of interest is to have things original, as subjects for drawing, and students like to make pose drawings. A mistake is sometimes made in allowing primary students to do too much pencil work. They seem to be able to work only in sharp outlines and get into a bad habit from which it is hard to break away. Things are seen in mass—in light and shade, and pencil work is not advised until this work can be done.

Outlines may be used in drawing, but should be so light as to be only a guide, and, when the drawing is completed, the outline should become entirely absorbed in the mass without use of the eraser. A foundation for a drawing is important and the pupil must throw some leading lines and then judge carefully his ratios and proportions before proceeding with his work.

Color is the first appeal to the child. Animal life is next, and action follows. These interests must be taken into consideration in teaching art. Begin with a study of color

with disks and charts. The color wheel will show that green is two colors, purple two colors, and orange two colors. While the student cannot be taken far into the triad of color, he can be shown that brown is a union of red and blue and yellow. For the study of light and shade the pupils should have individual sets of the cube, sphere, pyramid, cone and cylinder on the desks.

Copies of the great masters should be carefully graded from the animal pictures of Landseer and Bonheur to the classics of Rome. Perry prints are available at one cent and up. These copies properly graded will give new studies for each division. Aesthetics of art may be taught up to about the seventh year, when students become more practical. They should then be given the application of art to industrial life. For the boys mechanical drawing and manual training serve this purpose, while the girls apply art to their home economics.

An annual exhibit of the work will interest the parents in art. They must be made to realize that art has more than a commercial side. They cannot judge the value of art by what is seen at the finger tips. Day by day each lesson implants its spirit, until, in time, we have art as a part of the character of the child, redeeming his life from the commonplace and the sordid. The child unconsciously becomes refined in spirit and is sensitive to beauty and harmony while yet poor in expression with any medium.

GENERAL OUTLINE

First Division: Study of color by cards, wheels, etc. Third dimension work—form emphasized. Hence clay is the best medium for expression. Modeling should be done from memory as well as from objects. Hard charcoal work follows modeling, and this is followed by colored crayons.

Second Division: Review work of the First Division, adding wood models as basis for forms, and Eagle Drafting Pencils. Also brush and pan of sepia. Water colors are often used too soon.

Third Division: Add to the previous supplies a three colored box. A systematic study of colored pictures and atmospheric colors should be conducted. Finally, the compass and mechanical drawing, and the application of art to industry.

CHAPTER XII

HISTORY AND CIVICS

HISTORY

In some schools history is regarded as a girl's subject, because the boys find it distasteful. This idea is unfortunate, indeed, as history is a very important part of the elementary course. The kind of history that makes a knowledge of dates and battles the important thing, or that begins with Columbus each year and ends wherever the class happens to be reciting at the end of the year, is certainly not worth while. But history that helps the student to understand the present and estimate the future, by the interpretation of the past, is a vitalizing force.

The aim of history teaching is not to cram the mind with dates and facts. Neither is it to teach patriotism in the sense in which that word is often used. It is to teach true patriotism, the patriotism that puts right and honor above might and dishonor. History teaches morals in the individual and the nation. It is socializing in that it should make the individual less selfish and more cosmopolitan and altruistic. In this connection, McMurry, in his "Special Method in History," says "It is often said that one aim of history is to teach patriotism. It might be better said that history should aim to clarify and purify the sentiment of patriotism. The crude feeling of patriotism is very strong and demonstrative in this country, and it is a reality, not a boast nor a dream. It greatly needs to be purified. Children should be made more intelligent about our country and more sensitive to its true honor and

dignity. This result is attainable by the schools, because the lives, words and deeds of the best patriotic Americans are easily within the reach of teachers and children. Disinterested American patriots, such as Franklin, Washington, Lincoln, Emerson, Bryant, Lowell and many others of the same stamp, have given unmistakable evidence in their works and words that they fully appreciated that higher destiny toward which America seems to be moving. True patriotism, by common consent, does not consist in magnifying our own country at the expense of England, the North at the expense of the South, or America right or wrong at the expense of the world. To cultivate fair-mindedness and honesty, to see clearly both sides of an historical controversy, is, in this respect, the true standard of history study. Americans have enough to be proud of without belittling those who chance to be their opponents, and without extravagant boasting as to their own deserts. Among other things we can well afford to understand our own mistakes and weaknesses, and to accept with fair-mindedness and honesty some of the superior excellences and institutions of other countries, as of France, or England, or Germany. A course of study in history must necessarily include much historical material from other countries, and many noble characters not American. We have no end of instructive lessons to learn from Europe. True liberality and the broad mental balance and charity which go with it are things of slow growth, but in the study of history it is the paramount obligation of the teacher to cultivate these dispositions both in himself and in the children."

Biography is the agency through which history, in the lower and intermediate grades, should teach types of men and women that are worthy of emulation, and who have

helped to make their countries great. What child will not profit by the stories of the lives of Washington, Lincoln, Harriet Beecher Stowe, Longfellow, Whittier, Daniel Boone and others in this country, as well as a similar list of persons who have influenced the development of other nations? Taking King Alfred as a type for European history, it has been said of him: "No other man on record has ever so thoroughly united all the virtues both of ruler and of the private man. A saint without superstition, a scholar without boast, a warrior whose wars were fought in defense of his own country, a conqueror whose laurels were never stained by cruelty, a prince never cast down by adversity, never lifted up to insolence in the hour of triumph—there is no other name in history to compare with his."

The mental discipline derived from a study of history can hardly be overestimated. While probably not as exact as mathematical calculations, the student reaches more or less definite conclusions after studying an event in history from its various aspects. For instance, if the colonies were justified in separating from the mother country, why was the South not justified in seceding from the Union? After the student has studied both of these critical periods in our history, he is in a position to weigh the facts carefully and come to his own conclusions.

Chronology is unimportant and should be taught only in advanced classes. It will kill the spirit of the subject in the lower division work. Dates have usually been overdone. A dozen or fifteen for the entire elementary course in history are sufficient. Neither is it necessary to require the children to memorize the administrations of the presidents in order, giving five or any other stated number of events that occurred during the office of each. Some administrations are noted for more than that number of

important events, while others have none that ought to be studied in the elementary school.

Supplementary reading in history is necessary to get a broad view of the subject. As well as a few good books for special reference, the library should afford a list of historical novels of the best grade. Students should be required to read a few of these as part of the course in history, and encouraged to read many more for general culture. If the teacher herself has formed the reading habit, she will have no difficulty in interesting the pupils. A list of one hundred references in history, selected from a much larger number in a library, is given at the end of the chapter. The teacher can select from the list when ordering library books for the school.

European history stories should precede the formal study of American history. This plan is now generally adopted. The Committee of Eight recognizes a few lines of development in the world's history that should be studied in order to better understand our own history. Authorities differ as to the location of the "cradle of civilization," but it was probably somewhere in the valleys of south-eastern Asia. From there this early type of civilization spread to western Asia among the Phoenicians and Greeks. They established colonies in southern Italy and Greece. The Roman conquest followed. Then came the invasion of central Europe by the barbarians from the East, and the beginning of the modern nations of that continent. These conquests expanded the new civilization to the shores of the Atlantic. The next great westward movement was to cross the ocean and colonize the New World. From this trend of civilization it can be seen that the American sage's advice to young men to "Go West" was only the echo of the cry of the ages.

Each of the ancient and medieval nations contributed something to civilization. That contribution has, to a greater or less extent, affected the present civilization of America. A knowledge of what each nation gave to the world is, therefore, necessary to understand our own history. In a word, we are wont to think of religion in connection with the Hebrews; of commerce, with the Phoenicians; of art, with the Greeks; of law, with the Romans; and of vigor with the barbarians. All of these peoples, and more, have had a tremendous influence on modern civilization. The foreigner landing on our shores brings with him the traditions and customs of the mother country. Many of these are worth preserving in the adopted country.

Geography and history are so closely related that they cannot be taught separately. The early explorers first taught the true shape of the earth. They discovered new lands and seas and were truly geographers. A knowledge of geography is absolutely essential to a complete understanding of history. Maps, globes and special charts should frequently be used in the history class. Slated cloth charts with outline maps are inexpensive and good for this work.

Heroes and hero worship in history teaching have been confined too largely to military achievements. The events connected with Marathon, Thermopylae, Quebec, Trafalgar, Waterloo and Manila Bay are striking examples. It is not the courage of a Napoleon nor the patriotism of a Bismarck that we should idolize, but rather that of the brave men who stepped aside to rescue the women and children of the Titanic, and that of the physician who willingly sacrificed himself that yellow fever might be conquered. Such patriotism is not merely national but universal; not selfish, but philanthropic.

The peace movement of recent years has been a worthy one. But neither peace medals nor Hague conferences could prevent the most stupendous catastrophe in history—the wholesale murdering of civilized people and the bankrupting of nations. The teacher, if she uses her opportunity in the schoolroom, is a mightier force for peace than all the statesmen the world has ever seen.

The Three Division plan is carried out in history as in other subjects for the rural school. The First Division work is correlated with language, geography and reading, and there is no history recitation period. The stories are told or read by the teacher and reproduced by the children. In the Second Division, the story method is continued, but easy historical readers should be introduced. The formal study of history from the textbook is left for the work of the Third Division, and at least one half of the time of the Second Division should be given to a study of general history stories. The program allows for one year of formal textbook work in United States History to be given in either the sixth or seventh year, alternating with geography. It may be argued that one year of history is not sufficient, but it is doubtful if more can be given in a rural school and leave sufficient time for the other subjects. If a child has been given history stories for three years, as suggested for the First Division work, and has then continued to study both American and European history stories from historical readers for two years more, he should have a background that will make the one year of formal history study more valuable than several years according to the old plan. Teaching history from the same book for two or three years and requiring the student to give topics from memory is worse than a waste of time. This is drudgery that creates distaste and defeats its very purpose.

FIRST DIVISION

The work suggested under this division can be given during the morning exercises, at the general period or correlated with the language and reading lessons. The teacher should have several good reference books of history stories in the library. The stories should be carefully selected and told by the teacher to the class. Fables, fairy tales, and myths have their place in awakening the imagination. Stories of child life, and present types of primitive life, should be told, to give a better understanding of developed civilization. The hunter, trapper, shepherd and Indian, with the associations that belong to each, will afford excellent illustrations. The child should read and learn the suitable practical literature. He should know the story of our flag and be able to give the salute. Anniversaries such as Thanksgiving, Christmas, Washington's and Lincoln's birthdays, the Fourth of July and others should be observed. It is not necessary to present the stories for this division in chronological order. It is often best not to do so. Neither should they be confined to American history stories. Somewhere in his development the child is entitled to know some of the great characters in literature and history, and, as many children do not obtain this information at home, the school should supply it. The following stories are suggested: Arachne, Pandora, Ulysses, Bag of Winds, Jason and the Golden Fleece, Ceres, Prometheus, Montezuma, Alladin, Theseus, Leonidas, Siegfried, Hercules, Abraham, Joseph, David, Jesus, Romulus, Julius Caesar, Alfred the Great, Bruce, Wallace, King Arthur, Washington, James Watt, Robert Fulton, Lincoln and others. The teacher should consult "How to Teach Stories to the Child" by Sarah Cone Bryant, "Northern Land Heroes" by Holbrook and "Stories of Great

Americans" by Eggleston. It is not expected that all of these stories will be given during any one year, but there will be time to have most of them during the three years of the First Division work.

SECOND DIVISION

The classes of this division recite together, and it is well to begin each year of the two years' work with some of the stories listed under the First Division, as the pupils will hardly be familiar with all of them. A set of historical readers should be introduced during the early part of the course. During the second year the work covered should be stories of the American history as given in any of the up-to-date historical readers, for example, "The Pioneer History Series" by McMurry or "The Story of our Country" by Elson and MacMullan. The first set consists of three books: the "Pioneers of the Mississippi Valley," "Pioneers of Land and Sea" and "Pioneers of the Rocky Mountains." The student should begin with the book for the section of the country in which he lives. The second set is a two book series the first of which gives the story of our national history to the close of the Revolutionary War and the second down to the present time. The other year's work of the Second Division may continue in the study of stories from our own history, but the last half year should be devoted to general history stories. "An Introductory American History" by Bourne and Benton and "The History of the Old World" by Elson and MacMullan are good for this work, although they are difficult for fifth-year students. A study of that part of European history that has a direct bearing upon American history is essential, if the child is to understand cause and effect in this subject. They are surely more important than dates and isolated facts. For

example, if the student is to get a correct viewpoint of the French and Indian wars, he must understand something of the economic and political conditions in France for a century or more before the French Revolution, that he may understand why that nation was willing to struggle to the finish with England for possessions in the New World.

The general history work may be given throughout the course during the two years of this division, if that plan seems better than to devote a half year to European history separately. The above suggestions regarding work that should precede the study of the French and Indian wars will illustrate how the work may be conducted. Similarly, before the study of the Revolutionary War, the revolutions in England, France and other countries should be discussed. It will then be seen that the American struggle was merely a part of a great world-wide movement for independence from arbitrary rulers.

The work of the Second Division, then, is to give a general foundation for the year of formal history in the Third Division.

THIRD DIVISION

One year of formal history from any good textbook should be given. It is already understood that history, is to alternate with geography. That is, history will be offered one year to the pupils of the sixth and seventh grades; and geography the next year, the classes being combined each year. If it seems best to have a half year of geography and a half year of history each year, that plan may be followed with the course suggested here. The first year of the Second Division work should have laid a good foundation for the early part of American history. It would, therefore, seem best to begin the Third Division work with the Ameri-

can Revolution and spend most of the year on history since that time, correlating whatever European history is necessary for an interpretation of our own. The last few weeks of the year may be spent on a review of the period of discovery and exploration. Maps, globes and historical charts should be used freely in presenting the daily lessons. The students should be encouraged to draw suitable books from the library to supplement the class work. See the lists of history references. Some teachers are able to inculcate the reading habit; others are not. Students will often get more history from the reference books, specially in the advanced classes, than they will get from the text. History may be made just as interesting to boys as to girls.

U. S. HISTORY REFERENCE

I. Discovery and Exploration

The Deerslayer—Cooper	Indian History for Young People
The Last of the Mohicans—Cooper	—Drake
The Pathfinder—Cooper	How Our Grandfathers Lived—Hart
The Pioneer—Cooper	Wigwam Stories—Judd
The Pilot—Cooper	Flamingo Feather—Munroe
The Prairie—Cooper	Conquest of Peru—Pratt
The Spy—Cooper	Conquest of Mexico—Prescott

II. Colonization and Settlement

The Colonies—Thwaites	A Tale of Acadia—D. E. Miller
Old Virginia and Her Neighbors—Fiske	Home Life in Colonial Days—Earle
The Making of New England—Drake	In Old Virginia—Page
Standish of Standish—Austin	Stories of Colonial Children—Pratt
Heroes of Middle West (French)—Catherwood	

III. Revolutionary Age

For King or Country—Barnes	Richard Carvel—Churchill
A Girl of '76—Blanchard	Daughter of the Revolution—Coffin
The French Revolution—Carlyle	Brave Little Holland and What She Taught Us—Griffis
Story of Joan of Arc, for boys and girls—Carpenter	

III. Revolutionary Age—Continued

Washington and his Country— Irving & Fiske	The Boston Tea Party—Watson
Benjamin Franklin—Morse	Midshipman Paulding—Seawell
Green Mountain Boys—Thompson	Four Great Americans—Baldwin.
The Boys of Old Monmouth— Tomlinson	Four American Naval Heroes— Beebe
	Four American Patriots—Burton.

IV. Critical Period

Formation of the Union—Hart	Eighty Years of Union—Schouler
Building the Nation—Coffin	Louisiana Purchase—Winship & Wallace
Captain Sam (1814)—Eggleston	
Tecumseh—Eggleston	

V. Mexican and Civil War

The Life of Col. David Crockett —Ellis	The Crisis—Churchill
Giant of Three Wars—Barnes	Little Shepherd of Kingdom Come —Fox
The Rifle Rangers—Reid	Battle Ground—Glasgow
The Civil War and the Constitu- tion—Burgess	With Lee in Virginia—Henty
A Bird's Eye View of our Civil War—Dodge	A Broken Sword—King
A Perfect Tribute—Andrews	Two Little Confederates—Page
Uncle Tom's Cabin—Stowe	Three Scouts—Trowbridge
	The Drummer Boy—Trowbridge
	Cudjo's Cave—Trowbridge

VI. Reconstruction

Reconstruction and Constitution —Burgess	Working with the Hands—Wash- ington
The Clansman (Klu Klux Klan) —Dixon	Up from Slavery—Washington
The Leopard's Spots—Dixon	Red Rock—Page

VII. Rocky Mountains and the West

Hunting the Grizzly—Roosevelt	The Gentleman from Indiana— Tarkington
Hunting Trips of a Ranchman— Roosevelt	Roughing It—Mark Twain
The Winning of the West—Roose- velt	Black Rock—Connor
Ramona—Jackson	The Sky Pilot—Connor
The Childhood of Ji Ship (The Ojibway)—Jenks	Hoosier School Master—Eggle- ston
Chumley's Post. (A story of Pawnee Trail)—Stoddard	Last of the Flatboats—Eggleston
	Luck of Roaring Camp—Harte
	Story of a Cowboy—Hough

VIII. Spanish American War and Acquisitions

The Story of Our War with Spain —Brooks	Little Journeys to Hawaii and Philippines—George
The Rescue of Cuba—Draper	Ba-Long-Long (Igorot Boy)— Jenks
Little Journeys to Cuba and Porto Rico—George	Our Little Philippine Cousin— Wade

IX. Miscellaneous

Historic Girls—Brooks	Twenty Famous Naval Battles— Rawson
Strange Stories from History for Young People—Eggleston	The Making of an American—Riis
Hero Tales from American His- tory—Lodge & Roosevelt	Master of Strong Hearts—Brooks

X. General History

Three Greek Children—Church	Thaddeus of Warsaw—Porter
In the Brave Days of Old (James I)—Hall	Marie Antoinette—Abbott
Lorna Doone—Blackmore	By Order of the King—Hugo
	Every Inch a King—Sawyer

TRAINING FOR CITIZENSHIP

An elementary course in civics should be given in every rural school, as a majority of the country boys and girls will never get this training anywhere if not in their home school. The course must be simple, but broad enough to familiarize the student with such local forms of government as he will need to know as a future citizen. Probably the best place to teach this subject is in connection with the history. One period a week can be given to civics in each of the history classes, or, if it seems better, parts of the history periods can be used and the civics taught incidentally. Supplementary readers pertaining to citizenship can be read in the advanced division. Talks by the teacher at the morning exercises will be helpful.

Local government should naturally be emphasized. The school district will represent a type of pure democracy where all the people have an opportunity to take part in the government. Students ought to be familiar with the formation of

a school district, the annual meeting, the officers and their duties, the permanent school fund, and from what sources the money used to maintain the school is raised. In Chapter I a more complete discussion was given. The town government should also be studied in states where this is an important unit. A distinction can be made between the democratic form of government, as the school district and township, and the representative form, as the county, state, and nation. The duties of the supervisors of the town, (not village) the annual town meeting, roads and bridges, and other topics of interest may be studied. The officers of the county and their duties, the commissioners, or county board, and the county roads and bridges are important for this unit of government.

The state and national government may be studied as time will permit, but they should not receive the attention at the expense of the local units of government. It is of very much more importance to the average individual to know who is to serve on the school board of the district and his attitude toward public education than to know who will be the next President of the nation. The former officer may have a much more direct bearing upon the welfare of the community than the latter. Notwithstanding this fact nine persons out of every ten will stay away from the annual school meeting.

A practical civics society is sometimes organized to create interest in parliamentary rules and governmental affairs. The entire room may form this organization and elect their officers. These are elected and the same order of business followed as in any public meeting. We have organized these societies in many schools with varying degrees of success. In some the greatest interest has prevailed from the start, while in others it gradually lagged until everybody

became disgusted with the organization. I am unkind enough to say that the only difference was in the teachers. On more than one public occasion little tots in the second year at school presided as president and secretary with the ease and dignity of a senator. A gavel tied with ribbons, the colors of the society, may be used, if desired. At times it is well to have this organization take charge of the opening exercises, selecting their own songs, quotations, etc. A particularly interesting feature is the use of Mr. and Miss when a person addresses the chair, or when that officer recognizes one on the floor. The salute to the flag may be given as part of the exercises, letting a different student hold the flag each time.

Time for teaching civics will be obtained only by taking it. Many of the suggestions given above can be conducted incidentally or correlated with other subjects. Civics is more important than much of the book history and some other subjects taught in our schools. Part of this time, if there is no other, should be devoted to preparation for citizenship.

CHAPTER XIII

GEOGRAPHY

Geography may be defined as the study of the earth as related to man. In this subject especially the teacher should apply this principle in pedagogy, "Begin with the known and work to the related unknown." The older notion of beginning with the planets and then with the physical features of the grand divisions of the earth has gradually been abandoned until most educators are agreed that the industrial and commercial side of geography should be the central idea of the entire course. In this regard the recommendation of the Committee of Fifteen is of interest: "The child commences with what is nearest to his interests, and proceeds gradually toward what is to be studied for its own sake. It is, therefore, a mistake to suppose that the first phase of geography presented to the child should be the process of continent formation. He must begin with the natural differences of climate and lands and waters and obstacles that separate peoples, and study the methods by which man strives to equalize or overcome these differences by industry and commerce, to unite all places and all peoples, and make it possible for all to share in the productions of all. The industrial and commercial idea is, therefore, the first central idea in geography in the elementary schools. It leads directly to the natural elements of different climate, soil, and productions, and also to those in race, religion, political status, and occupations of the inhabitants, with a view to explain the grounds and reasons for this counter-process of civilization which struggles to overcome the differences."

Much of the geography is largely a process of memory

work and should be learned during the drill age, which corresponds approximately to the Second and Third Divisions. For example, learning the names of countries, rivers, and cities is not a process of reasoning. There is just one way to learn this phase of geography and that is by constant drill. Maps and globes will help, and the teacher should make more use of them than she often does. Every student should be required to make from memory a fairly good outline map of each of the continents. These remain the same regardless of wars and international treaties, while the boundaries of countries do not. A student who can draw such an outline off-hand from memory will not locate the British Isles south of Spain, as I recently saw one pupil who had finished geography do. It is well to be able to locate the great cities of the world, also the chief industrial activities, as the coal and iron producing regions, forests, grains, etc., not locally for one country, but for the entire world.

A great deal of the geography work should be taught out of doors. While it may be more difficult for the rural teacher to arrange her work so that she can take the geography class on excursions, it is the country rather than the town that renders them worth while. An occasional trip can be arranged in the afternoon after the first division has been dismissed. Both of the other divisions can be taken at the same time. Teachers often talk about the lessons in the book, when they could take the class for an outing and study the real things. We spend hours during the year in various classes talking about how grains are planted, cultivated, harvested, and threshed, when these things are being done all about us. I well remember having to stand in the corner with my back to the school for an hour, because I looked out of the window to see a thresh-

ing machine go by. What live boy is not interested in a puffing engine drawing a separator along the road? How much better it would have been for the teacher to have taken the entire school outside for five minutes to watch the threshing outfit go by! The occasion could have been made the basis for several interesting lessons later on. Weathering, erosion, land formations, and a great many other similar topics that are often difficult for the student to grasp, can so easily be explained from nature. If there is a stream within a mile of the school house, the teacher should use it as her laboratory in geography.

As it is not a common thing for rural students to do field work, some teachers may be timid to inaugurate it, fearing that the community might think she was wasting time. The teacher who is big enough to make geography a real, live subject, will have no trouble. A grocery store, blacksmith shop, creamery, brick or tile yard, dairy farm, poultry yard, kitchen garden, orchard and grain field are other places of interest, where geography can best be taught at first hand.

McMurry, in his "Special Method in Geography," says there are seven principal topics that may be studied experimentally in home geography. They are:

1. Food products and occupations connected with them.
2. Building materials and related trades.
3. Clothing materials used, manufacture, etc.
4. Local commerce, roads, bridges, railroads.
5. Local surface features. Streams, hills, woods, etc.
6. Town and county government. Courthouse, city hall, council, etc.
7. Climate and seasons. Sun, wind, storms, heat.

The geography lesson in the rural school so often drags when it ought to be one of the most interesting subjects. Students should be encouraged to make collections of

soils, rocks, plants, etc., found in the community. The older boys will be delighted, if asked to make a collection of the different kinds of wood they can find. A cross-section of a small tree, two or three inches in diameter, can be made by sawing off a piece about half an inch thick and sandpapering one end, which will show the bark, sap-wood, rings of growth and heart of the tree. A longitudinal section can be prepared by sawing off a block three or four inches long from the same tree and splitting it in two. These specimens can be mounted on a panel of some kind and hung up on the wall, if there is room. A collection of this kind properly labeled is well worth the time it takes to prepare it. The school should be equipped with at least one slated globe and two or three blackboard charts slated on both sides, for illustrative exercises in geography. Slated cloth, charts and globes may be obtained for twenty-five cents each. The charts cost about a dollar and a half each and can be used for history work as well as geography.

It is generally conceded now that the course in this subject should begin with home geography. Let this kind of teaching be literally true. The school district, township, county, state and nation will follow in order; then North America, Europe, Africa, Asia, Australia and South America. The first part of the course presents the home geography idea, while the second traces the development of the other continents from Europe as the center.

FIRST DIVISION WORK

While there is no recitation in geography as such for this division, some of the work in the general lessons and in language should be geographical in its nature. Excursions with the rest of the school should be made occasion-

ally in the spring and fall. Those things near at hand should be taught by the objective method. In the language work, "Seven Little Sisters" can be made the basis for much of the work in geography in this division. This can be followed by "Each and All" and the story of "Robinson Crusoe." One copy of each of these books will be sufficient, as the teacher will tell the stories and have them reproduced by the class.

A sand table as large as the room will accommodate should be prepared and kept in constant readiness. Lakes, rivers, mountains, plains, and other physical formations can be illustrated. The sand table can also be used to illustrate stories in literature.

McMurry's "Special Method in Geography" is a splendid reference book for the teacher. See also agricultural outlines.

SECOND DIVISION

The program plans for a twenty-minute period in this division, with the fourth and fifth years' students reciting together. One year of this work should be devoted to home geography, the county and state, keeping as the central idea industrial and commercial geography. The students should learn to draw memory maps of the county and the state. Relief maps and industrial maps of each should also be made. The other year of this division should be devoted to a study of the United States by groups, and later to the whole North American continent making relief and industrial maps from memory. Since the two classes of this division are combined, the teacher can readily see that one half of this work will necessarily come first to one fourth year class when it enters the division, and the other half to the next fourth year class when it enters a year later. While this plan may not be ideal,

and would not be necessary in the graded schools, it is very much better than to have two classes and to divide the time. Let the students read "Seven Little Sisters," "Each and All," and other similar books and part of the group reading material in this division. Two copies of each book will be all that is needed. A textbook may be used the last half of each year, provided something that is suitable can be obtained. "Home Geography" by Fairbanks, and Long's "Home Geography" are good, as well as the books of the Tarr and McMurry series, and other standard geographies that can now be obtained. This is the period for whatever memory work is to be done in geography.

THIRD DIVISION

In this division the course provides for one year of geography to alternate with one year of history. It is evident that one year the geography will come in the sixth year and the next it will be in the seventh. Some teachers feel that this is not enough time for either history or geography; but there is no doubt that more can be accomplished in combining the classes and alternating the work than by offering both subjects every year and giving half the time to the recitations. But little could be done in a ten-minute period in either subject. No more time than this could be given unless it were taken from some other recitation. As it is, the student studies each of these subjects three years, and a good foundation should be laid before this in first division work. After all, with a properly organized course, much can be taught in that time. If it seems desirable, one half of the year can be devoted to geography and the other half to history during each year of the third division work. Any good textbook may be used. Start with Europe and follow the order given

above, emphasizing particularly the industries and commerce of each country.

The physical features of each continent should be carefully studied in this division. Weather maps may be obtained from the nearest weather bureau and the students taught how to read them. Why the cyclonic storms pass periodically from the western to the eastern coast, why the wind blows from the east before a local storm and, then changes around to the north or northwest, are topics that will be intensely interesting, if properly presented. A study of the ocean currents and planetary winds will reveal the cause of the different climatic conditions of places in the same latitude, as, for instance, the British Isles and Labrador. Only those physical features that are of direct practical value should be discussed in these classes.

The productions of the United States should be studied very carefully for each section of the country. Taken up topically, cereals, live stock, cotton, forests, fruits, fisheries, minerals and manufacturing would receive attention. Following these, logical topics are transportation and exchange not only in our own country but with foreign nations.

After the continents have been studied in order, the great transcontinental railroads and their importance to the nations; the ocean routes radiating from the terminals of these railroads; the canals and how they influence commerce; comparison of the products of different countries; the chief exports and imports of each; the meaning of "balance of trade" and how it affects different countries; free trade and production, should receive an explanation based on actual and practical facts.

Many industrial exhibits, such as milling products, soil products, thread manufacturing, etc., may be obtained from manufacturing establishments. Most of these

are sent free; others may be obtained at a nominal cost. Similar exhibits prepared by the teacher herself will be found to be the very best kind of training for teaching those subjects. The author once spent a few hours a day for two weeks in preparing an exhibit of some thirty-six stages of the products of a flour mill. These products ranged from the grain in the hopper to the best grade of flour and all its by-products. The bottles were properly labeled and notes taken on the entire process. Similar studies in a large lumber mill and a brickyard were equally beneficial. Close the year's work with a brief review of the geography of the United States. A list of reference books is suggested for the library.

LIST OF GEOGRAPHY REFERENCES

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|-----------------------------------------------------|----------------------------------------------------------|
| Lolame The Little Cliff Dweller—
Bayliss | A Little Journey to Hawaii and
the Philippines—George |
| Stories of Country Life—Bradish | Forestry in Minnesota—Green |
| Stories of Woods and Fields—
Brown | The Childhood of Hi-Ship the
Ojibway—Jenks |
| Around the World (First Book)—
Carroll & Jerome | Wigwam Stories—Judd |
| Around the World (Second Book)
—Carroll & Jerome | Northern Europe—Mason |
| Around the World (Third Book)
—Carroll & Jerome | Our Country East—Mason |
| How We Are Clothed—Chamber-
lain | Our Country West—Mason |
| How We Are Fed—Chamberlain | Industries of To-day—Mason |
| Little Folks of Many Lands—
Chance | Under Sunny Skies—Mason |
| Stories of Industries—Chase and
Clow | Little People of the Snow—Muller |
| Chinese Folk Stories—Davis | Eskimo Stories—Smith |
| The Early Cave Men—Dopp | Heidi—Spyri |
| The Tree Dwellers—Dopp | Pete—Cow Puncher—Ames |
| The Later Cave Men—Dopp | Over the Andes—Butterworth |
| Home Life in Colonial Days—
Earle | Jan of the Windmill (Story of the
Plains)—Ewing |
| Home Geography for Primary
Grades—Fairbanks | Food Products of the World—
Green |
| A Little Journey to Cuba and
Porto Rico—George | Out on the Pampas—Henty |
| | The Story of the Cowboy—Hough |
| | The Fur Seal's Tooth—Munroe |
| | Snow Shoes and Sledges—Munroe |
| | Prince Dusty—Munroe |
| | Great American Industries —
Rocheleau |
| | Hunting the Grizzly—Roosevelt |

CHAPTER XIV

NUMBERS AND ARITHMETIC

A prominent educator once made the statement that if he could have a normal child at the age of twelve or fourteen, he could teach him in six months all the arithmetic he would ever need to know. If so, we surely ought not to hear so much criticism of this subject as it is taught in the schools. We hear that children who have completed the common schools, and in some cases even the high schools, cannot do ordinary work in numbers. Inaccuracy is the first complaint, and that students are slow in the fundamental operations is the second. It should not be understood that pupils are more backward in number processes than they were a generation or two ago. They are not. On the whole, our rural and elementary schools are far superior to those of former generations, but there is more demand in the commercial world for the products of these schools to use what they have learned; hence, the work must be more thorough.

The defects in arithmetic as it is applied to business are probably largely due to the fact that school arithmetic has not been the business man's arithmetic. We go on teaching processes that are never used outside the school-room merely because they are in the book. In some cases, where a more up-to-date text is in use, the teacher actually "works in" some of these obsolete exercises from a text or notebook that she used, in order to give the "mental training" the children should get from arithmetic. If she could only realize what a wealth of mental training there is in really mastering the fundamentals, and then applying them to real problems outside of school, less time would

be wasted on this subject. Time is worse than wasted, because too often book arithmetic is not interesting, and students become indifferent in the advanced grades where they should be doing their best work.

Textbooks in arithmetic are important and the best that can be obtained should be used in the rural schools. We have all seen books that no village school would use, retained in rural schools on account of a contract price that may save the district a few cents or dollars. The fault lies with the school board. The teacher who finds such conditions is sometimes helpless. She should always have the courage to ask for efficient equipment. Then, if the board refuses, it is not her fault. She should be familiar with what subject matter should be taught in each grade or division of the school. Many teachers do not have the subject systematized. Too often the work in numbers is indefinite and unrelated. One teacher, not knowing, perhaps, what another has taught, repeats work and omits other essentials altogether. Undoubtedly much valuable time and energy are lost. The teacher ought to have a mental outline of what is suitable material for the primary division, the intermediate grades, and for the advanced classes. In a measure she will then be independent of the textbooks, and, in any event, will be able to conduct the oral work, so much more of which is needed in all our schools, in a systematic and efficient manner.

Formal number work should not begin too early. There is some difference of opinion as to where one should begin to teach arithmetic. Some begin in the first year, and others in the second or third. Inasmuch as the main theme of the first three years should be the mechanics of reading, together with the oral language work, it would seem that whatever work in numbers is given, should be largely inci-

dental. I should have no formal number work in the first grade of a city school, not to mention a rural school where so much less time is available for reading and language. In the second and third it should be incidental and occupational. For example, the pupil should know the time by the clock, the day of the month, the page of the book. In other words, he should know how to count and use numbers that he needs to know in his daily work. The industrial work and other lessons will give opportunities to form such definite number concepts as are needed in this division. For those who desire to teach numbers in the first years of school an outline as usually taught is suggested.

FIRST DIVISION

The aim of the First Division is to give a definite concept of each number as it is introduced, and to teach number facts and promote speed and accuracy in the use of them. In short, the aim is to furnish a sound and usable basis for the advanced work. No formal, logical analysis or reasoning should be expected, of course, and no textbook should be used in the hands of the pupils. The program, as suggested in the three division plan, provides for all three classes of the First Division to recite at the same time, thus giving each student thirty minutes under the direct supervision of the teacher instead of only ten minutes, if each were to recite separately. This arrangement will give any energetic teacher time enough to present the work to each class in turn and keep the other two busy at the board while she has the one at the recitation seats.

The first year work, as already stated, should be largely incidental. Numbers may be used in games, handwork, nature study, reading, and seat work. Suggestions for this year are given in the teacher's manual, or first book of any

late arithmetic series. By the end of the year the children will be able to read and write simple numbers within their comprehension, to count to a reasonable number, and to recognize equalities and differences. If formal number is required, number facts should be taught up to ten.

The second and third year work should continue in the same manner. Read and write numbers that are actually used in other work of these years. Teach counting by twos, threes, fours, fives, and tens, up to one hundred. This will lay the foundation for the formal number work of the Second Division. Present simple fractions, as one half, one third, one fourth, one fifth, and others within the understanding of the child. This is done with objects only at this time. Work with measures, as the peck, gallon, quart, pint, yard, foot, inch, pound and ounce. Of course a set of these measures must be part of the school equipment for effective results. Many special devices for the seat work in number should be used. A good primary magazine will give valuable assistance. With a printing press and some oak tag card board, several sets of flash cards may be made. These should supplement any other material that may be on hand, as they can be made to suit the work as taught each month.

SECOND DIVISION

The four fundamental operations in number—addition, subtraction, multiplication, and division, together with simple work in common and decimal fractions, ought to be so presented and drilled, that, if the student should go no further in school, he would be able to use arithmetic in any ordinary work. This purpose is not theoretical; it is entirely possible. The two classes can be together or not in the work, depending upon what they have had in the First Division; but, in any event, they should recite at the same

time. One class may be at the board while the teacher is presenting the new work and assigning the lesson to the other. Flash cards and special devices should be used as in the First Division. A large amount of the work for this division should be oral. Have a good oral arithmetic on the desk as a guide; otherwise, the work may not be systematic. This division is the period in which all the necessary tables should be fixed in mind. Cancellation, factoring, greatest common divisor and least common multiple should be taught only as they can be directly applied. All operations should be confined to common business numbers.

Business arithmetic is not hard. It is the schoolbook work in numbers that is difficult and perplexing for the student. We teach tables as they happen to be found in the textbooks and then fail to vitalize them in application to real life. There are but ninety different processes in numbers, and omitting the combinations with the digit one, which are really axiomatic, there are only seventy-two. If these and their simple applications are thoroughly mastered, there is little occasion for complex problems. The teacher must know how to present the mechanics of arithmetic, as she must know the phonics for the foundation of reading, if she expects success. I was never taught any tables but those in multiplication, and never knew those thoroughly until I began to teach. The whole hundred and forty-four processes were given, and for several years we repeated them, parrot-like, without making any use of most of them. Many books now give addition tables and other mechanics of numbers, but they are usually too complicated. The old spiral series is giving way to topical books for the advanced students.

Addition and subtraction tables should be mastered in the Second Division. It is not necessary to teach a new set of subtraction tables; in fact, it may be confusing to do

so. For instance, $2+4=6$ is one of the addition tables. It is much better to teach the inverse of this at once, or $6-4=2$ and $6-2=4$, by thinking what number added to 4 equals 6, and what number added to 2 equals 6. This is the "making change" method of teaching subtraction and will be easy for the pupils, if it is not hard for the teacher. In this way addition and subtraction will be taught at the same time, as they should be, and the application to simple problems may be made as the tables are being learned. Nearly all of the problem work should be oral in this division. I have seen a hundred exercises and problems solved in oral work in less time than it usually takes to do ten of the same kind in the average lesson, because the average lesson is written and formal. The forty-five processes for addition, and also for subtraction as indicated above, are given for those who may not have used them. As already stated, the first column of ones may be omitted, if desired, as the counting of the First Division work will show the pupil that one added to any number will give the next number.

Addition Tables

The inverse process teaches subtraction.

(1)	(2)	(3)	(4)
$1+1=2$	$2+2=4$	$3+3=6$	$4+4=8$
$1+2=3$	$2+3=5$	$3+4=7$	$4+5=9$
$1+3=4$	$2+4=6$	$3+5=8$	$4+6=10$
$1+4=5$	$2+5=7$	$3+6=9$	$4+7=11$
$1+5=6$	$2+6=8$	$3+7=10$	$4+8=12$
$1+6=7$	$2+7=9$	$3+8=11$	$4+9=13$
$1+7=8$	$2+8=10$	$3+9=12$	
$1+8=9$	$2+9=11$		
$1+9=10$			
(5)	(6)	(7)	(8)
$5+5=10$	$6+6=12$	$7+7=14$	$8+8=16$
$5+6=11$	$6+7=13$	$7+8=15$	$8+9=17$
$5+7=12$	$6+8=14$	$7+9=16$	
$5+8=13$	$6+9=15$		
$5+9=14$			(9)
			$9+9=18$

Counting by twos, threes, etc., up to ten, as suggested for the First Division work, will prepare the pupil for the study of these tables. An average of two of these processes each week during the fourth school year will be sufficient to master the entire list, and three days a week may be spent on their application in oral exercises and problems.

Multiplication Tables

The inverse process teaches division.

(1)	(2)	(3)	(4)	(5)
$1 \times 1 = 1$	$2 \times 2 = 4$	$3 \times 3 = 9$	$4 \times 4 = 16$	$5 \times 5 = 25$
$1 \times 2 = 2$	$2 \times 3 = 6$	$3 \times 4 = 12$	$4 \times 5 = 20$	$5 \times 6 = 30$
$1 \times 3 = 3$	$2 \times 4 = 8$	$3 \times 5 = 15$	$4 \times 6 = 24$	$5 \times 7 = 35$
$1 \times 4 = 4$	$2 \times 5 = 10$	$3 \times 6 = 18$	$4 \times 7 = 28$	$5 \times 8 = 40$
$1 \times 5 = 5$	$2 \times 6 = 12$	$3 \times 7 = 21$	$4 \times 8 = 32$	$5 \times 9 = 45$
$1 \times 6 = 6$	$2 \times 7 = 14$	$3 \times 8 = 24$	$4 \times 9 = 36$	
$1 \times 7 = 7$	$2 \times 8 = 16$	$3 \times 9 = 27$		
$1 \times 8 = 8$	$2 \times 9 = 18$			
$1 \times 9 = 9$				
(6)	(7)	(8)	(9)	
$6 \times 6 = 36$	$7 \times 7 = 49$	$8 \times 8 = 64$	$9 \times 9 = 81$	
$6 \times 7 = 42$	$7 \times 8 = 56$	$8 \times 9 = 72$		
$6 \times 8 = 48$	$7 \times 9 = 63$			
$6 \times 9 = 54$				

Eliminating the first column of ones, which the student already knows, there are but thirty-six processes in multiplication. The other three fourths of what we used to learn in the multiplication tables is either review or unnecessary work. The elevens and twelves were only half-learned from counting. As each process is learned the other two processes derived from it should be studied, as $2 \times 6 = 12$; hence, $12 \div 6 = 2$. Two of these learned each week during the fifth school year will give three days a week for application and ample time for review at the end of the year.

Common and decimal fractions should also be studied during the fifth year. Not in the manner given in many books, but continuing with the simple business fractions of the First Division. In fact, all that is necessary for these

grades is the half, the fourth, the tenth, and the hundredth, and their divisions, as three fourths, nine tenths, etc.

The student should be taught to write the fraction both ways when he first learns it. The American money will teach about all the decimals needed, if the teacher will make the pupils "see the point." It is the decimal point that causes all the trouble in that subject.

Fractions Needed

Common $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{10}$, $\frac{1}{100}$
 Decimal .50, .25, .10, .01.

By using the zero in the decimals for one half and one tenth, the decimal will be written as fifty cents and ten cents, forms with which the student is probably already familiar. It is evident that any multiple of these fractions can be taught in connection with these. Other fractions than those here suggested are rare in business, and yet how we still torture the child and ourselves by teaching something hard! For example, where, outside the school-room, do we meet a monstrosity like this?

$$\begin{array}{r} \text{Reduce: } 2\frac{3}{7} \\ \hline 5\frac{4}{9} \\ \hline 1\frac{1}{16} \\ \hline 2\frac{7}{8} \end{array}$$

This is not difficult, if one remembers that a fraction is merely another way of expressing division, and reduces it accordingly; but it is unsound pedagogically, and positively silly to waste time in school with such work. But some textbooks are still guilty.

The arithmetical processes suggested for the Second Division are surely not difficult, and any school can master them and be able to apply the numbers to real conditions

in the two years of this division, whether any work in numbers has been given in the previous years or not.

THIRD DIVISION

The two classes of the division should be combined and work together. If the work as outlined for the Second Division needs reviewing, that should be taken up first. The new work will be largely percentage and its application to business. Some of the topics are profit and loss, insurance, interest, checks, notes, bills, etc. Any good text may be used and the topics selected that are suitable for the Third Division work. Half of the course is given to the combined classes one year, and the other half the next.

Accounts should be taught in this division. Egg record and other blanks may be obtained from your Extension Division of the Agricultural College and copies made and used. Make up some ledger rulings on sheets or cards and teach practical accounts. Use the actual data in this work. The students will enjoy keeping the accounts, and in this way the arithmetic they have learned can be applied to daily life. Encourage the boys to keep accounts for the farm business and the girls to keep home accounts. All they need to know is the idea of what an account is, the kind of ruling used, the debit and credit sides and when to debit and credit an account. The student can be taught to debit an account when the account receives, and to credit an account when the account parts with something. For every debit entered on one account, there must always be a corresponding credit on some other account. Hence, the sum of the debits of all the accounts must always equal the sum of the credits of all the accounts. This kind of work is not too difficult for pupils of the upper classes; it is really not as hard as some of the problems often given,

and it will be much more useful. An inventory should be taken first. The boys may make this for the farm, stock, implements, etc., and the girls, for the home in the same manner.

Six or eight accounts are all that are necessary to keep the farm transactions in a business way. The same number will suffice for the home. For the farm the following accounts may be started and others added if desirable: Cash, Dairy or Live Stock, Corn, Grain, or an account for each kind of grain as desired, and Personal Accounts. For the home: Cash, Food Supplies, Household Furnishings, Clothing, Rent, Fuel and Light, Miscellaneous, and Personal Accounts. Suggestive inventories and accounts are given.

In the accounts on the next two pages (185 and 186) the Italics should be written in red ink, according to the usual custom of bookkeepers.

SUGGESTIVE ACCOUNTS

CONTINUED INVENTORIES

Items	Remarks	Jan. 1, 1914	Jan. 1, 1915	Jan. 1, 1916
<i>Kitchen Utensils</i>				
1 Range.....	3 yrs. old.....	40 00	36 00	
1 Tea Kettle.....	Nickel.....	1 50	1 00	
2 Dish Pans.....	Enamel.....	1 50	1 00	
Etc.....				
<i>Dining Room</i>				
1 Table.....	Quar. Oak.....	22 50	20 00	
6 Chairs.....	Quar. Oak.....	9 00	7 00	
Table Linen.....	Cloths, Napkins.....	12 50	8 50	
Etc.....				
<i>Living Room</i>				
2 Rockers.....	Oak.....	15 00	12 00	
1 Stand.....	Oak.....	3 75	3 25	
1 Rug.....	Wilton.....	18 00	16 00	
Etc.....				
<i>Hall</i>				
1 Hall Tree.....	Oak.....	4 50	4 25	
1 Rug.....	Brussels.....	8 50	7 00	
<i>Bedrooms</i>				
2 Bedsteads.....	Iron.....	17 50	16 50	
2 Rugs.....	Rag.....	6 00	4 00	
2 Dressers.....	Oak.....	18 00	16 00	

S. A. NORBERG

Date	Brought Forward		Date	Brought Forward	
3-16	Received Check.....	2 60	1-5	1 Sack Flour.....	2 10
			1-9	2 lbs. Dairy Butter @ 25c.	50
		2 60			2 60

C. A. SWANSON

Date	Brought Forward		Date	Brought Forward	
1-16	Received Check.....	3 30	1-4	2 Kitchen Chairs @ 75c..	1 50
			1-6	Picture Wire.....	10
				2 yds. Linoleum @ 85c...	1 70
		3 30			3 30

A. L. THELANDER & CO.

Date	Brought Forward		Date	Brought Forward	
1-16	By Check.....	4 85	1-11	5 gal. Kerosene @ 15c...	75
			1-14	2 pkgs. Needles @ 10c...	20
				1 pr. Shoes.....	3 50
			1-16	1 pr. Yarn Gloves.....	50
				6 yds. Gingham @ 15c...	90
		4 85			4 85

MRS. HENRY SMITH

Date	Brought Forward		Date	Brought Forward	
1-16	Monthly Allowance.....	40 00	1-2	Received Check.....	40 00
		40 00			40 00

CASH

Date	Brought Forward		Date	Brought Forward	
1-2	Received Check.....	40 00	1-2	2 lbs. Mutton @ 15c....	30
				1 lb. Lard.....	18
				Paid Rent.....	10 00
			1-10	Church Collections.....	50
			1-16	A. L. Thelander & Co....	4 85
				S. A. Norberg.....	2 60
				C. A. Swanson.....	3 30
			1-16	Bal. on Hand.....	18 27
		40 00			40 00
1-16	Bal. on Hand.....	18 27			

RENT, FUEL & LIGHTING

Date	Brought Forward		Date	Brought Forward	
1-2	Paid Rent.....	10 00	3-16	Expense.....	10 75
1-11	5 gal. Kerosene @ 15c...	75			
		10 75			10 75

HOUSEHOLD FURNISHINGS

Date	Brought Forward		Date	Brought Forward	
1-4	2 Kitchen Chairs @ 75c...	1 50	3-16	House F. Expense.....	3 30
1-6	Picture Wire.....	10			
	2 yds. Linoleum @ 85c...	1 70			
		3 30			3 30

CLOTHING

Date	Brought Forward		Date	Brought Forward	
1-14	1 pr. Shoes.....	3 50	3-16	Clothing Expense.....	4 90
1-16	1 pr. Yarn Gloves.....	50			
	6 yds. Gingham @ 15c...	90			
		4 90			4 90

FOOD SUPPLIES

Date	Brought Forward		Date	Brought Forward	
1-2	2 lbs. Mutton @ 15c....	30	1-16	Food Expense.....	3 08
	1 lb. Lard.....	18			
1-5	1 Sack Flour.....	2 10			
1-9	2 lbs. Butter @ 25c.....	50			
		3 08			3 08

MISCELLANEOUS

Date	Brought Forward		Date	Brought Forward	
1-10	Church Collection.....	50	3-16	Misc. Expense.....	70
1-14	2 pkgs. Needles @ 10c...	20			
		70			70

CHAPTER XV

SEAT WORK AND SPECIAL DEVICES

Many good class teachers fail to get results from pupils who are at their desks. The advanced classes will have books to study, but the younger children have not yet learned to study, and must be provided with plenty of seat work. The busy teacher often feels that she does not have the time to prepare such work, and primary classes are sometimes left to shift for themselves while other classes are being conducted. Seat work must be definitely planned and faithfully executed. Materials must be carefully arranged according to subjects and grades and used systematically. Monitors may be appointed to distribute and collect the boxes or envelopes containing the seat work, thus allowing the teacher to conduct her classes without loss of time.

Seat Work

Industrial work may be given for part of the seat work for primary students, as they may not stay for that work at the general period in the afternoon. Suitable outlines for industrial work are given in Chapter XVII.

Free-hand cutting is interesting and useful seat work. Dull pointed scissors costing only fifty or sixty cents a dozen should be used for this work. There is no better way to determine whether a student got the thought of an oral lesson than by letting him illustrate it with paper cutting. The Pilgrims, Christmas Stories, Little Red Riding Hood, etc., are suggestive stories that might be illustrated.

Drawing is always interesting work for children, and part of the vacant periods of the primary division can profitably be devoted to it. Ordinary white drawing

paper and pencil may be used, but a few colored pencils and charcoal sticks will add to the interest. Seasonal subjects should be selected, as fruit in the fall, snow scenes in winter, and flowers in the spring. Water color work is also desirable, if it is properly supervised and not overdone.

Special seat work in language, geography, and arithmetic should follow the class work in those subjects. A few devices are suggested. Many of them are not new, but they may be helpful to the young teacher.

LANGUAGE SEAT WORK

Printing presses are not expensive. A few of these in the primary division would supply a large amount of practical work in language. In a crowded school the older students should assist with this work.

Buried words to be selected from words and sentences and listed will be helpful occasionally. For example, "He arose from his seat." Find a flower and a body of water. The answer is "rose" and "sea."

Letter and phonic drill. A card of oak tag four by thirteen inches is ruled off into inch squares. The first thirteen letters are written in the upper row, and the last thirteen in the third row. On the back of the card have

a	b	c	d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w	x	y	z

Figure 11. Letter and phonic drill.

an envelope containing all the letters of the alphabet. The game is to match the letters on the card. This device may be used for learning the letters and their sounds. See Figure 11. One card is needed for each child.

Word and phonic drill. Make oak tag cards about eight by twelve inches. With ink draw the root part of the word, and add the other letters, as in the card with the

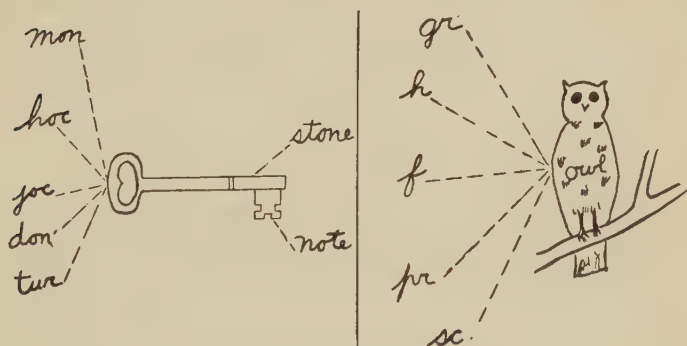


Figure 12. Word and phonic drills.

picture of a cat. The words catch, cattle, catkin, catnip, and catsup are suggested. See Figures 12 and 13 for this and others. These may also be used for class work.

Lesson stories. On a card of oak tag six by twelve inches paste a picture at one end. Pictures for this may be obtained from old readers or magazines. On the other end of the card write words at the top and underline them. Then write sentences about the picture; but, instead of writing the words selected at top of the card, put a dash for each word omitted, and let the students fill in the blanks with the proper words. See illustration.

Word drills. Make a card of heavy oak tag ten by

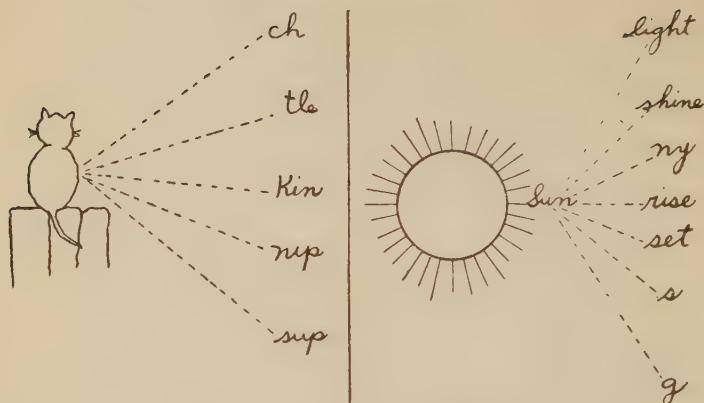


Figure 13. Word and phonic drills.

twelve inches for each pupil in the division. At the top paste three or four small pictures, or make drawings. Underneath each picture write a word showing something prominent in the picture. In an envelope fastened to the

(Picture of a mill, wheel, and a boy fishing.)	<u>wheel</u> <u>water</u> <u>fish</u> <u>happy</u> <u>bite</u>
	The boy looks _____. Do you like to catch _____? The mill has a large _____. The wheel is turned by _____ flow- ing over it. I think he has a _____

Figure 14. Language lesson story.

Boy & Snow Man	Hen & Chickens	Girl & Oranges	Cat & Kittens
<u>Snow</u>	<u>Hen</u>	<u>Yellow</u>	<u>Cat</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Figure 15. Language word drills.

back of the card have neat slips, each containing a word showing something about the picture. See Figure 15. These cards may be exchanged until all have used them. This device should supplement the reading lessons. It may also be used to good advantage occasionally for language drills in regular class work as the teacher may find opportunity.

GEOGRAPHY SEAT WORK

Clay modeling is an excellent means of expressing ideas of many geographical forms. Clay may be purchased in hundred pound kegs, if it is not available locally. The powdered form may also be bought by the pound at small expense.

Relief maps may be made by mixing flour and salt to the proper constituency and moulding the maps on stiff card board. Threads soaked in bluing are used for the rivers.

Matching maps. Secure the maps of several states or countries from old geographies or other sources. Cut these into different shapes. Mix the pieces. Let the students have sets of these and match them. In this way they will become familiar with the maps.

Matching animals. Get pictures of the characteristic animals of the different continents. Cut them as in the

case of the maps. Let the pupils match the pieces and learn the animals of each continent.

Map drawing. Let the children draw maps of the home farm, the school district, township, county and state, locating the interesting features in colors. A blue pencil can be used for rivers and lakes, some other colors for farm homes, silos, creameries, schoolhouses, villages, and other places of interest. Product maps may be made by pasting on the map some of the products of the region, as corn, wheat, oats, etc.

NUMBER SEAT WORK

Toy money may be made or purchased. Students will find a great deal of pleasure in using this at their seats and can learn to count money and make change as in actual business. One set for each person is required, of course.

Domino cards are easily made. Use oak tag cards six by eight inches. Cut out disks about an inch in diameter from colored paper, red being particularly attractive. Paste these on the cards so that all the combinations of the addition tables (36) will be formed. Students may use these at the seats in learning the tables, and they may be used as flash cards in class for drill work. They may

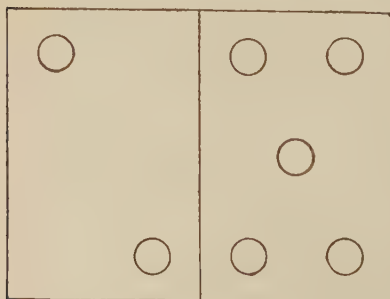


Figure 16. Domino cards for number work.

also be used in subtraction, multiplication and division. See Figure 16.

Dice cubes. Make or buy a few dozen blocks one inch on a side. The number needed will depend upon the size of the class using them. With ink, put the figures for all the

combinations in addition and multiplication tables. At the seats, the children turn over any two blocks at one time and add, subtract, multiply or divide the two figures, depending upon the work they are learning. A blotter on the desk will prevent any noise. This is a very interesting device for most children and is well worth the time it takes to make the cubes. In class the cubes may be thrown and sides chosen to see which side can answer the most numbers correctly.

Colored pegs are useful for the younger children when they are first beginning the use of numbers. These may be arranged for counting or for grouping in learning the addition and multiplication tables.

Daisy chains, with a definite number of certain colors, may be used to good advantage in number work. Hang them up, only after they have been verified to be correct as to the directions in number. These and the colored pegs may be used for sense training in the first year, before they are used in number work.

Corn is often used for seat work in arithmetic. It is easily obtained and may be used in counting and grouping as suggested for the pegs and chains. Get fresh corn when that in use becomes soiled.

OTHER SEAT WORK SUGGESTIONS

Pegs may be used to illustrate objects, as, a hat, chair, table, telegraph poles, and fences. Wall paper is easily obtained. The figures may be cut out and assorted according to shape and color. A leaf book in which to press and trace autumn leaves is interesting in the fall. Seeds and berries may also be used for color and grouping. Paper may be folded to make furniture, for example, a cup-board, showing the shelves, linen, dishes, fruit, etc. The common

rule can usually be obtained free from lumber firms. Children can use this in drawing lines, making squares, and in measuring distances. Posters for the room and to take home may be made from cardboard, objects representing Thanksgiving, turkeys, pumpkins, squirrels, pilgrims, wigwams, Indians, etc. A blank book for the child to put in anything he chooses, to be checked up by the teacher at the end of the term, will often develop originality.

The following seat work suggestions from the outline of a good primary teacher may be helpful.

1. **Pictures in envelopes.** Name should be written on each one and on outside of envelope. Pupils arrange in order they are written, and, later, copy the names.

2. **Sentences.** Cut into words sentences from old readers. Write these sentences on the outside of the envelope, and have students make up the sentence from the words.

3. **Make words** known on a page from an old reader.

4. **To follow directions.** Write the word found as follows: Page 4, line 2, word 6.

5. **Names.** Write the names of ten actions, ten birds, ten flowers, ten animals, ten persons, ten cities.

6. **Blanks.** Fill in with words or pictures.

7. **Questions and answers** that will form a story of the lesson, or show preparation.

8. **Rhyme words,** as book, look, cook, hook, etc.

9. **Copy** all that one character says in a story.

10. **Cross out** all the silent letters in a list.

DEVICES FOR CLASS USE

Language

Dramatization has already been mentioned. It is always interesting, even to the most timid, if the teacher

uses care in getting the children to respond. Only selections worth while should be dramatized.

Acting titles. Members of the class leave the room and decide upon the name of some familiar book. They then return and act out the title. If guessed correctly, other members of the class act another title in a similar manner.

Reading quotations and naming authors. Familiar quotations are written on convenient pieces of oak tag card. The quotations are drawn and read by the pupils. Each reader attempts to give the author of the quotation. If he fails, the slip returns to the pile; otherwise he keeps it. The individual, or side, having the most slips at the end of a given time wins the game.

Time conversations. The class is divided evenly, and the players are paired off. One of the two draws a slip containing a topic of conversation. The pair must rise and converse about the topic suggested until the time is up. Begin with one minute and gradually work up to four or five.

Teakettle is an old but interesting game. One member of the class retires until the others decide on a word. He then returns and asks questions of each pupil in turn. The pupil must answer in a sentence containing the word selected, but substitutes the word "teakettle" instead of using the word. The one asking the questions attempts to guess the word from the answers. If a word having more than one meaning is selected, as "plum," "plumb," it is harder to guess and more interesting.

Geography

Alphabet games are played in a manner similar to a spelling contest. One leader starts by naming some city that begins with A. The other leader must name another

that begins with A before ten can be counted, or take his seat. The next person in line names a city beginning with the same or next letter in the alphabet, and so on. The side having the most pupils left at the end of the time wins the game.

A body of water, mountain, or other geographical subject may be taken instead of a city, as in the first case. Written games may be played in the same way, allowing one minute for each letter. These are checked and the scores compared.

A traveler is chosen and assigned a place from which he is to start. He must tell about his journey, stating his route of travel, places visited, the people, occupations, etc. Another follows, giving his experiences, until all have been chosen. Geography may be reviewed in this manner.

Drawing geographical topics written on a piece of paper and mixed is an interesting device. Each must give an oral description of the country or places mentioned on the slip.

Exports and imports may be given by two persons at a time playing merchants. The two state the countries with which they trade, and the others must guess what they sell each other.

Class Devices in Numbers

Counting by twos, threes, fours, etc., up to tens to lay the foundations for the tables. Choose sides, and as soon as one side makes a mistake the other chooses a player from that side.

Domino cards discussed for seat work should be used in class as flash cards for rapid oral drills in addition, subtraction, multiplication and division.

Number tops may be made of wood or cardboard and numbers put on the hexagonal sides, and one on the top.

In addition the numbers for several spins may be taken. The number on the top may be used in multiplication and division.

Bean bag is played by tossing small bags filled with beans through holes in a board placed at an angle several feet away. The larger holes to count less than the smaller. Ten, five, three, two and one, may be the points for the holes beginning with the smallest. Each player throws three bags and gives his total score. Sides may be chosen and scores kept on the blackboard.

Tenpins are made of cardboard cylinders and set upon the floor. The pupils use rubber balls or small wooden spheres, and bowl from a convenient distance. Scores are kept on the blackboard.

Playing store with objects representing merchandise and with toy money is very interesting to children when first beginning the study of numbers. Weights and measures should be used also, if they are available.

1	I	One
2	II	Two
3	<i>etc</i>	<i>etc</i>
4		
5		
6		
7		
8		
9		
10		

Numbers in Arabic and Roman, as well as the word for each number up to ten, may be used for primary children. Make a card seven by ten inches of oak tag. On the left write the Arabic figures. Have the Roman numerals and the words in a pocket on the back of the card. The pupils place them in the other columns as suggested in the cut. See Figure 17.

Bridge board is noisy, but interesting. Make the board of

Figure 17. Number cards for seat work

pine by boring two inch holes and sawing down through the centers of the holes. Fasten supports so that the bridge will stand alone. At a distance of ten or fifteen feet, marbles are rolled through the holes which are numbered from one to the total number of holes in the board. The numbers over the arches are added for the total score.

Fractional parts may be shown by pasting forms cut from red paper to a large chart board about twenty-two by twenty-eight inches. These can be used later for showing forms of area. Whole numbers are also represented to show their relation to the fractional parts. See Figure 18.

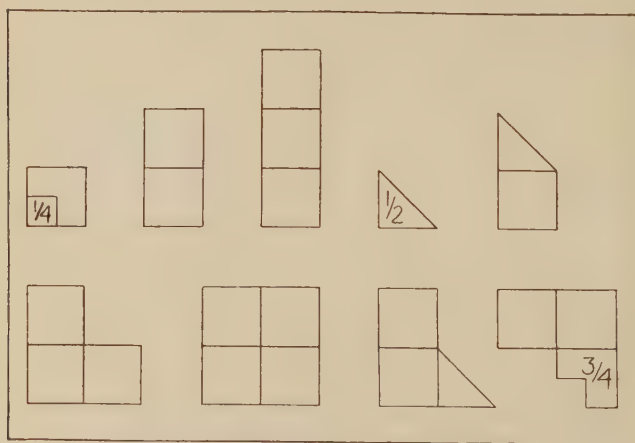


Figure 18. Simple fractions and whole numbers.

Arithmetical races may be played by choosing sides and solving as many new problems as can be done in a given time. Check these and find out which side has the largest correct answers. These number of races may be varied by using mechanical drills instead of problems and exercises.

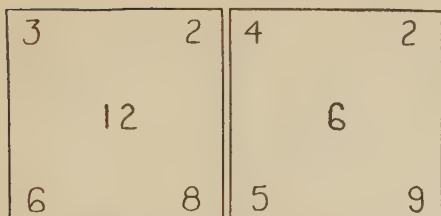


Figure 19. Flash cards for rapid drill.

tion, subtraction, multiplication and division. See Figure 19.

Merry-Go-Round. Make a circular card about two feet in diameter from chart board. Get the large two-

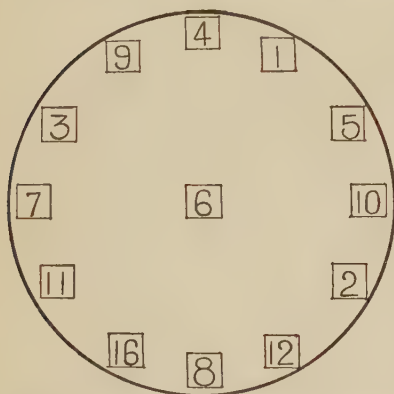


Figure 20. Merry-Go-Round showing figure pinned in center.

Flash cards for drill in the fundamentals may be made from oak tag, cutting the cards four by four inches. The same set may be used for addition

and subtraction. Place a figure in the center, and call on a student to give the computation asked, and to see if he can go around the Merry-Go-Round without falling off. All of the fundamental operations may be used with this device. See Figure 20.

Cardboard charts containing a list of numbers to give the fractional parts, as two thirds of twenty-four, and one half of thirteen, may be hung on the board and the answers written on the blackboard by the teacher or a student. In one, the numbers would be written in the space cut out of the chart, as suggested in the drawing. In the other the answers are written on the board to the

right of the chart. The reverse side of the chart may be used for a different set of drills. Only practical fractions and comparatively small numbers should be used, so that all the drills may be oral. Rapid work is the secret of success in these drills. See Figure 21.

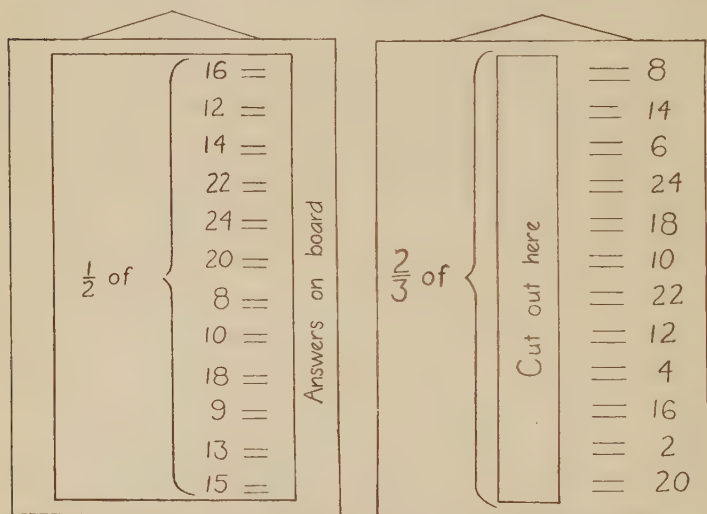


Figure 21. Cardboard charts to be hung on the blackboard.

Addition tables may be learned rapidly by using flash cards. Those at the bottom of the cut may be used for any of the drills in the fundamentals. Those at the top are for practice in rapid addition. Notice the groups of ten. See Figure 22.

"Chickens" is played by scattering a handful of corn about the floor. The children hurry to see who can get the most. They then count the number secured, and report.

The fundamental tables and drills may be made interesting by various devices. For example, choose sides, and

4	6	2
6	7	3
7	8	5
3	9	4

3	8
---	---

6	2
---	---

Fig. 22. Addition tables to be printed on tag strips and used as flash cards.

put 12 on the board. The leader gives one number, and the other side gives the other number that will make 12.

Educational papers and magazines will supply numbers and devices and should be read by all teachers. The brief suggestions given in this chapter will help the inexperienced teacher, but the progressive teacher will be original and make up new devices each year. It is well to re-

member all devices are merely temporary aids to the child to be used as a crutch and thrown away when no longer needed.

CHAPTER XVI

THE TREND OF INDUSTRIAL EDUCATION

Twenty-five years ago the subjects now known under the head of industrial education were hardly thought of as part of the course of study for any schools, not to mention those of the country. Until very recently but little progress had been made except in the larger centers. That the school should actually become a live institution and do things as they are done in the home, on the farm, or in the shop, is a very new idea. It has come about on account of the discussions at teachers' conventions, bankers' associations, and other business men's organizations. Women's clubs and conventions have favored industrial education in the schools, on account of the direct influence of this work on the future welfare of the individual.

The stamp of culture and refinement is no longer placed upon only those who wear white collars or silk dresses. Neither are we looking for the former Bostonian kind to mutilate the language. The young man from college who stands around in his patent leather shoes and up-turned trousers, with the latest bow on the hat stuck on one side of his enlarged head, telling what he has done in athletics, while his father milks the cows and hoes the garden, should consult his Latin "pony" for the derivation of the word "culture." The young woman who is content to play the piano and receive "guests," while her mother scrubs the floors and does the mending, need not expect a real man ever to become interested in her. Not that culture means drudgery; for it is just the opposite, but it does mean work. Modern society has no place for the human parasite. The young home-maker may be fortunate enough to have what

help she needs for the ordinary house work; but, in order to direct this work intelligently, she must know how to do it herself. Such knowledge cannot be obtained from books alone. The great "captains of industry" realize this truth, when they train those who are to manage units of their business by requiring them to "come up through the ranks." Even European monarchs have the same principle of "learn to do by doing" in mind, when they compel those who are to succeed them to serve in the ranks with ordinary soldiers and sailors, and, in some cases, to work in the industries.

During the last few years the movement for industrial education in the public schools has gained such momentum that any progressive school must now satisfy the intellectual appetite of its students with manual training, domestic economy, or agriculture, as part of their mental food. These subjects are not only permeating the higher institutions and secondary schools, but fast gaining ground even in the rural communities. Educators of the old school are fearful of the outcome of such a movement and bewail the loss of culture displaced by commercialism. Even the most ardent supporters of the movement are mindful that the educational pendulum sometimes swings too far, and are willing to pause for a readjustment. But the sooner we have passed entirely through the "fad" stage the quicker we shall reach a sound, working basis; for practically all are agreed that industrial education must become a fundamental part of the course of study of our public schools. Our entire educational system is gradually, but surely, undergoing a change with this end in view.

A few years ago, while preparing a paper on "Is the Utilitarian Idea in Education Being Carried Too Far?" the author sent out a questionnaire to a large number of persons representing all classes of society—professional men,

business men, farmers and persons retired. The questions had special reference to the establishment of industrial courses in existing high schools, as teaching this work in the rural schools had not then been advocated in many communities. The answers received were extremely interesting in that they showed the general public to be alive to the educational questions of the day and to have an intelligent understanding of the needs of this class of schools. Among other things I found the following facts: That 52% of the school patrons, as far as the answers could be relied upon to reflect their views, regarded the industrial course more important than the academic course; that 80% favored both courses in every state high school; that, if only one course could be offered in smaller high schools, 55% preferred that it should be the industrial rather than the academic course; that 84% of those answering believed that high schools offering both courses should receive additional state aid. It is only fair to state that since these questions were sent out, the Putnam Act has been passed in Minnesota, giving state aid for industrial departments, and that most of the high schools of the state now offer industrial courses. The answers would be still more favorable, if similar questions were asked at this time.

In the rural communities consolidation and association of schools will be the greatest factor in bringing about the change so much needed in the courses of study. Much is already being done in some of the single-roomed buildings, due, largely, to an energetic and enlightened teacher. A little foresight on the part of those planning a country school building would materially facilitate the work to be done. A semi-graded school of two rooms is, capable of special improvement. By putting a basement under such a building at a slight additional cost not only could a

heating plant be installed, but ample accommodations could be provided for the industrial work. The two teachers, preferably a man for the one room, could offer manual training and agriculture for the boys, and a woman, for the other, could teach cooking and sewing to the girls. The work could be given as often as local conditions would permit, but at least once a week for each subject. It is probable that qualified teachers can be secured as rapidly as the demand for them increases.

The public recognizes that book training alone is inadequate to educate the child and is demanding a more practical education. Psychologists have come to the aid of the movement in declaring that industrial education is necessary during the early period of training, say to fifteen years of age, if the motor centers are to be fully developed.

The object of industrial training is usually given as two fold: To acquire actual knowledge and skill, and to develop character. Experience has proved that the new subjects are fulfilling their purpose and increasing the capacity for work. "The hand is made the obedient servant of the brain." Hence, it is claimed the new subjects are entitled to a place in the course of study in all schools.

Objection has been made that the schools are trying to teach trades, but arguments of the objectors will not stand. Teaching the constitution in history does not make lawyers of the students; a knowledge of interest and bank discount does not necessarily produce a banker; and a study of the electric telegraph in physics will not produce telegraph operators. But all of these things do produce more enlightened and efficient citizens. So it is with the industrial subjects.

Vacation schools have been opened in many of the larger centers for those boys and girls who do not have regular

work to do. A large amount of the work done in these schools is industrial. In some schools the students are allowed pay for part time or full time work. There is a minimum and maximum wage schedule, depending upon the age of the worker. This should be kept low enough that the sale of the products will pay all operating expenses. The balance, or profit, may be divided among the workers, after providing a sinking fund to pay for breakage and repairs. A card system of accounts must be kept by the students showing the time and wages per hour. This is excellent practice for students and provides work for those who might otherwise be idle. While vacation schools are probably practicable only in the larger places, the idea of putting students on a profit-sharing basis for industrial work done can be carried out in any school where the pupils are willing to work after school and Saturdays. The school farm, the manual training shop, and the home economics department in the high school are examples showing how some such a plan might be carried out successfully. Even in rural schools of two or more rooms the plan would not be impracticable, under the proper leadership.

The subjects usually considered under industrial education are manual training, domestic economy, and agriculture. Manual training in its various forms was the first to be introduced into the public schools. It was established in Sweden, Germany, England, and other countries of Europe sometime before it appeared in the schools of America.

Manual training includes not only the wood and iron work of the advanced grades, but also the paper cutting and folding, weaving with paper, felt, splints, yarn and other material, basketry, bead work, clay and other modeling, and the sloyd of the elementary grades. With a definite plan and amount of work to be covered in each of these

divisions, many good teachers are accomplishing much with a small outlay for supplies and a few good elementary reference books. It is the unsystematic way in which some schools have pursued this work that has been largely responsible for opposition to it in some localities where it is called a "fad."

Domestic economy not only teaches actual practice in cooking and sewing, but the whole subject of housekeeping as a profession is included. Serving, laundering, purchasing materials, study of textiles, dyeing, bacteriology, care of the sick, and other similar subjects have become part of this work. In some localities classes are formed for the women of the community and they work out a special course offered once or twice a week, as time permits. In this way they derive direct benefit themselves as well as keep in touch with the work done by their children in the regular classes. During the last few years domestic economy has become one of the most popular subjects in high schools and in the upper grades. In rural schools many teachers are serving hot lunches at noon, assisted by the older girls of the school, and sewing is being successfully taught.

The work in agriculture in the public schools is more recent in America; but, stimulated by conservation congresses and legislation, there appears to be a growing demand for it in all classes of schools. The work usually consists of recitation and laboratory work in farm crops, animal husbandry, horticulture, farm accounts, farm management, sanitation, drainage, and other kindred subjects. This is supplemented by demonstration work on plots of ground connected with the school. These plots range from five to one hundred and sixty acres, but probably average about ten acres. In many places the success of these plots has been phenomenal. In others they have been total failures.

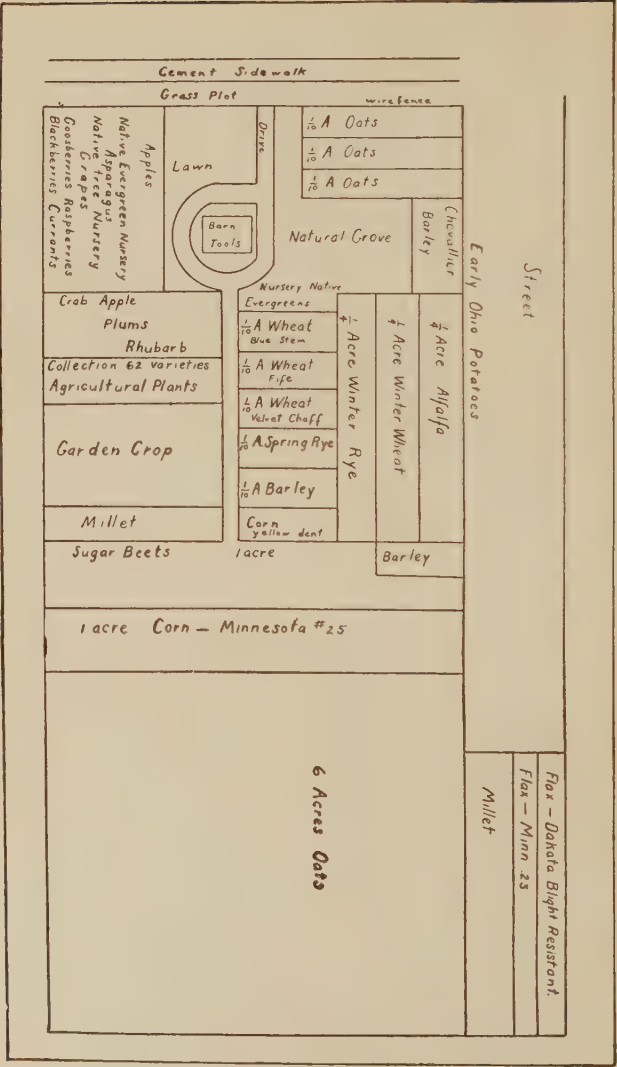


Figure 23. The school farm as arranged for one season at Hinckley, Minn.

The result depends largely upon the person in charge. It takes tact, perseverance, and plenty of "elbow grease" to make the school plot successful. Some farmers are more critical than they should be; others are sympathetic, appreciative, and willing to co-operate with the school. Seeds are sometimes distributed for home gardens under the direction of the school. Local and state contests stimulate interest in the home project work. In many sections farmers of the community set aside plots on which to test fertilizers and different crops.

The splendid work being done by the industrial departments of the schools in Minnesota and other states the last few years has given impetus to this movement. There is a general feeling that the liberal aid given these departments is money spent in the right direction, and that legislatures should provide for better rural schools. It is this class of schools more than any other that should now claim the attention of state and national governments.

This is an age of conservation. The great conservation congress held at St. Paul a few years ago was a landmark in this new movement. But, to my mind, the greatest problem before us to-day is the conservation of the boys and the girls of the state for the rural community. It cannot afford to lose so many of its brightest young men and women. One of the best ways to keep them is to interest them in their environment by teaching them more subjects they can use and fewer that have no practical bearing on daily life.

CHAPTER XVII

GENERAL INDUSTRIAL WORK

Industrial work and vocational work are sometimes confused. They are not synonymous terms. Industrial education is the study of the work of the industries, and is usually taught through hand work representing some of the manufactured products of these industries. It is work that has just as much a place in fundamental education as elementary history or geography, and should be grouped under the general head of "industry." Vocational work is that which is offered on account of its direct value to the individual in preparing him for his life work. Such education is offered in trade schools, normal schools, and other technical schools. Only occasionally is true vocational work offered in the high schools. Undoubtedly more of it should be given in these schools. In so far as home economics is made practical, and really prepares those taking the course to become homemakers, it is vocational. The teacher's training departments, and the agricultural departments are, to some extent, vocational also.

Education is largely traditional. It is only natural that industrial and vocational education should have to struggle for recognition. Ancient philosophy could not harmonize culture and industry. Culture, to the Greek, meant war and poetry. The Roman saw in culture, law and politics. During the Dark Ages there was no culture. The Renaissance revived it only by a study of the ancient classics—Greek and Roman. The Reformation recognized it in religion. Only within the last half century, after a desperate struggle with the humanities, has science come within the sacred portals of cultural education. It remains for the

present generation to see in industry culture as well as vocation. America is beginning to learn that the old idea of culture is not true to our principles of democracy, and that it is entirely out of place in a great industrial nation. Many of the best minds are drawn from the professions into the industries, where the larger salaries are attractive. Ignorance of the industrial conditions of the country among so-called educated people is often ridiculous.

The need of industrial education in the elementary schools, including the rural schools, is well stated by Cole in his "Industrial Education in the Elementary School". He says: "The purpose of the elementary school is to give such knowledge, feeling, and power as all citizens should possess. As far as it neglects industry, the school falls short of its purpose. Industry is among the departments of civilization about which everybody should know something. Further social sympathy should be cultivated in all citizens, and social sympathy cannot be developed until all the world knows what most of the people do. Social efficiency, too, depends upon knowledge; for without some acquaintance with industrial affairs even those who are engaged in other pursuits are handicapped. They cannot intelligently co-operate with work which they know nothing about. The modern view of industry, as a stimulus to culture, a condition of higher standards of living, and a source of ideals, implies that it should no longer be neglected even in part by the elementary school."

Industrial training in the elementary schools has been too much of the "hit and miss" kind. There has been no standard course of study—in fact, few standardized courses of any kind—and the resourceful teacher has given such instruction in industrial work as she could with the training she happened to have. The two extremes could only

be expected under such circumstances—talking about industrial work without doing it, and making certain unrelated articles without instruction. Definite instruction should precede or accompany the industrial work. For example, when rugs are made from yarn, jute, or raffia, the students should be instructed as to where these materials are prepared and what uses they have in the industries. The same kind of instruction should be given for rattan and other materials. Some of this instruction can be correlated with oral and written language.

The general industrial work should be given throughout the entire elementary course; but, as the work for the last part of this period is divided for the boys and the girls, the suggestions here given will apply particularly to the pupils of the First or Primary Division. Basketry and rope work may be given to the intermediate and advanced students to supplement their work in manual training and sewing. No attempt is made to classify the work in the order of taking it up, as that is best left to the discretion of the teacher; but it is well to begin with the simple forms of weaving and modeling before attempting basketry and other more difficult problems. The work should be varied as much as possible. Appropriate changes will suggest themselves for such special occasions as Thanksgiving, Christmas, birthdays, Valentine Day, Easter, May Day, etc.

The time given to industrial work must depend upon circumstances. Some schools can give more time to it than others. Part of the time for the seat work should be devoted to industrial work for the primary division. All the programs suggested in Chapter VIII provide for this work during the general period in the afternoon twice a week. The First Division pupils may remain during these two periods instead of being dismissed, if there is not sufficient

time otherwise. The work is so interesting to the average student that the teacher can conduct several branches of industrial work at the same time and keep all pupils busy after they are once started on a project.

The supplies needed will naturally depend upon the size of the school and the time given to industrial work. From five to fifteen dollars' worth will be enough for the general industrial work. The manual training and sewing materials of the advanced division should be paid for by the students. A suggestive list of materials and prices are given. They may be purchased from any general school supply house. For the First Division paper weaving materials are needed. These may be purchased in packages in various sizes, with slits one fourth, one third, and one half inch wide, at about a cent for each mat. All the standard colors may be obtained. Colored sheets should be purchased and strips cut with the scissors for more advanced weaving after the ready-made mats have been put together. Papers for folding and cutting may be purchased at fifteen to twenty cents a hundred squares, usually four by four inches, in colors. Looms may be made or purchased. Hammock looms are easily made by cutting heavy cardboard to the desired size, rounding the ends, and cutting notches in them for the fastening of the warp. These are very inexpensive and are just as good as those that are purchased. Looms for rug weaving may easily be made in the school, if the students have manual training. All our schools in the associated districts have been supplied. A loom that costs thirty cents may be made for from three to six cents for the material. We made ours of oak one fourth of an inch thick. Pine or basswood will do. The two end pieces are each ten inches long and one and one fourth inches wide. Notches are made by put-

ting the two ends together and sawing to a depth of one quarter inch, and one fourth of an inch apart. In these the warp is fastened for weaving. The ends are fastened together with two pieces twelve inches long and three quarters of an inch wide. These are fastened by sawing a slit in the ends of the end pieces, so that the side piece will just fit flat-wise. They are then nailed and glued. Holes are bored in the ends for the heavy wire to make the loop adjustable in width. These wires are copper, three sixteenths of an inch in diameter, and may be bought at any hardware store. They should be cut fourteen inches long and have a loop made in one end for a handle. A wooden cross-piece similar to one of the ends may be made to slide along the side pieces. This will enable one to make the loom adjustable in length as well as in width. Flat wooden needles made from quarter-inch basswood, rounded off at one end, and a hole bored in the other for threading the material, can be made very easily, and they are better than the metal needles for the most of the weaving. These should be sandpapered down until they are a little less than one eighth of an inch thick, a half inch wide, and about ten inches long. With such a needle, the material may be drawn through the entire width of the rug at one time. Metal needles are needed for finishing the rugs and for working in patterns. See Figure 29.

Rug materials are few or numerous as one desires. Colored rags from home are as good as anything for the practice work and cost nothing. They should be cut or torn into suitable lengths and widths. Roving is a very coarse weaving material, excellent for beginners, and may be purchased in colors at about seventy cents a pound. It should precede the finer materials. Carpet yarn may be obtained at about sixty cents a pound. Jute makes cheaper

weaving material at from twenty-five to thirty cents a pound. Chenille, plain and mottled, is good for pattern work, or for the entire rug. It costs about sixty cents a pound. Macrame cord comes in balls, any color, and costs about fifteen cents a ball. It is used principally for hammock making, but is rather expensive. For practice, rugs may be made out of rags, raffia, or even corn husks, and save the expensive materials for exhibit work. All these materials are used for the woof of rugs and hammocks. For the warp to "thread" the looms, carpet warp may be purchased in colors at about fifty cents a pound. Brass rings for hammocks will cost about two cents a pair for the inch size. Smaller ones may be used, if desired. German-town yarn is beautiful for knitting caps, bonnets, mittens, leggings, etc., but is rather expensive for rugs. It costs about fifteen cents a skein.

Basketry and raffia supplies may be furnished by the school or purchased by the students, as desired. Plain raffia costs from fifteen to eighteen cents a pound, and colored from forty to fifty cents. Rattan, or round reeds, will cost from thirty-five to eighty-five cents, depending upon the size. The medium sizes are used most, but the teacher should order by sending samples of the sizes desired. Flat reed for napkin rings and basketry costs about fifty cents a pound. Raffia and rattan may be dyed, if desired; but it is rather hard to get uniform tints unless one has had practice. The finished baskets and trays should be shellacked as soon as they are made.

Clay for modeling comes in three forms—the flour, in bricks, and moist in barrels. The flour may be obtained in five-pound boxes at five cents a pound. The bricks are usually five pounds each and cost the same as the flour. Moist clay is a little cheaper when purchased in barrel

lots. Some communities have near at hand clay that is good for this work, and costs only the labor of getting it.

SUGGESTIVE COURSE, INDUSTRIAL WORK

FIRST DIVISION, (1—3 YEARS.)

The industrial work of this division will naturally come under several heads. I would suggest the following: Agriculture, paper folding and construction, weaving, raffia and rattan work, and modeling.

The agricultural work is necessarily simple, but it is, nevertheless, interesting and useful. It is discussed in detail in Chapter XXI.

Paper folding and construction may precede or follow the paper weaving. A ruler, pencil, pair of scissors, and paste are needed. Make envelopes and boxes for seed and other collections in agriculture. Other objects from which a selection may be made are as follows: Small basket, doll's furniture, sled, Indian canoe, Puritan cradle, shaving ball or pad, needlebook, match scratcher, Christmas bells, windmill, May basket, carriage, house, barn, chicken-coop, picture-frame, bookmark, fan, Chinese lantern, circular marker, hexagonal box, blotting-pad, calendar, valentine, button box, tent, card and photograph holders, screen, flower holder, whisk-broom holder and pocket comb holder. The materials for these are common manila drawing paper, oak tag, cover paper and colored construction papers.

Weaving is usually begun with paper strips and ready-made mats are given under materials for industrial work. Paper weaving may be followed by basket weaving with heavy folding paper, bookmark weaving, pencil tray, mats, boxes, napkin rings, match safe, pincushion, blotter, calendar and thermometer backs. After the paper weaving, loom work should be given. Rugs of rags, roving,

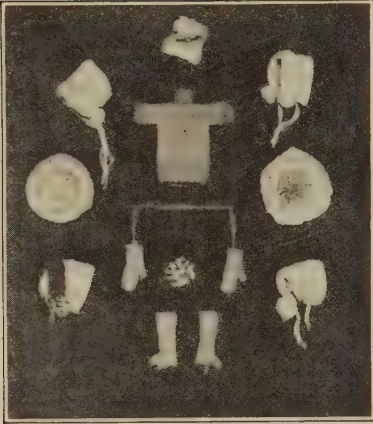


Fig. 24. Germantown yarn work of First Division, showing caps, sweaters and leggings.

yarn, jute, chenille, raffia and other materials are made. Bed blankets and draperies for a doll's house may be woven. Hammocks, made of macrame cord on homemade cardboard looms, may be hung outside the doll house. Doll caps, mittens, and leggings may be made of Germantown yarn on the loom and sewed to shape. See Figure 24.

Raffia and rattan work should largely be done in

the intermediate and advanced divisions. Raffia rugs, napkin rings, picture frames of cardboard wound in raffia, and raffia baskets may be attempted in the primary division.



Figure 25. Making rattan trays and baskets on the school grounds.
No truants in this school.

Modeling is always of interest and its educational value is evident. A piece of oil cloth, or a square board, should protect the desk. When clay is used it should be prepared the day before. The children, of course, must be able to wash their hands after the work. Encourage outside work and ask the children to bring their products to school to show the others. Modeling is especially valuable in training both hands at the same time. Begin with forms from life, as animals and plants, rather than the geometrical forms. Later these should be given, and the ball, apple, peach, pear, orange, banana, and other similar objects modeled. A bird's nest and eggs, marbles, clay baskets, beads and ornamental vases, are some of the popular pieces. It is well to have in mind the following general divisions of the subject: 1. Modeling from objects present at the time. 2. Modeling from memory. 3. Modeling from imagination. 4. Design in modeling. Fruit modeling may be shaded with water colors and, when dry, given a coat of shellac which gives a very natural effect, if well done. Other objects may be colored in a similar manner.

SECOND AND THIRD DIVISION WORK

The general industrial work of these divisions should be raffia and rattan weaving, basketry, bead work, if desired, and rope work. The objects made may be varied. If manual training and sewing are given in these divisions, as they should be, there will not be much time left. A little basketry, however, and rope work should be given sometime during the course. Napkin rings of rattan and flat reed, baskets of raffia and rattan, collar boxes of rattan wound and fastened with raffia, serving trays of rattan and a wooden bottom, waste baskets of heavy rattan, and knots and splices in rope work, are all useful and practical

lessons. The rattan work should be given a coat of shellac as soon as finished. It may be finished in colors or natural.

Reference books are necessary for the best results in industrial work. It is impossible to give directions for making many of the articles suggested here, as space will not permit. The author has found the following list of books almost indispensable: Paper Sloyd for Primary Grades, by Rich; Industrial Work for Public Schools, by Holton and Rollins; Hand-Loom Weaving by Todd; Card-board Construction, by Tryborn; Hand Work, by Hoxie; Raffia and Reed Weaving, by Knapp; Clay Modeling, by Holland; and How to Make Baskets, by White. Bulletins on rope work may be obtained free from many of the agricultural colleges.

Industrial work and geography should be correlated to the extent that the students should know where all the materials used come from and how they are used in the industries. Raffia is a light yellow material that is shredded off from the bark of a certain palm tree. Most of ours comes from the island of Madagascar. On account of its pliability and toughness, raffia is much used for industrial work, and also for rope making in the industries. Rattan is a kind of a palm that grows in the East Indies. It is peculiar in that it sometimes reaches one thousand feet in length, and is supported by neighboring trees. It grows in various sizes, but is seldom more than an inch in diameter. There are very few branches, sometimes none for two or three hundred feet. The different species are very useful in their native countries for plaited work, rope making, etc. Rattan is twisted into ropes and used for purposes requiring great strength. In this country it is used for basketry, rustic furniture making, etc. Jute is made from the inner bark of a tall annual plant native to the

East Indies, but now grown in several countries for commercial purposes. The fiber is used for carpet making, canvas and rope.

Directions for making a few forms of industrial work are given for those who have no other books, but as many reference books on industrial work as the school can afford should be in the library.

1—Single Paper Weaving

Materials: Manila drawing paper for practice. Later, use colored papers for a variety.

Directions: Use a square of any desired size from four to eight inches. Fold the bottom over to the top. With

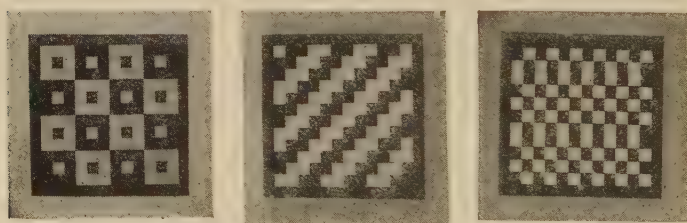


Figure 23. Paper weaving in First Division. Note different designs.

a ruler and pencil make lines one half inch apart beginning one inch from the left side, and ending one inch from the right side. The lines should run to the folded edge of the paper, but end just one inch from the upper edge. With the scissors cut along the lines. Open the paper. You will have it cut into slits one half inch apart. Cut another piece of paper into strips one half inch wide and as long as the square just used. Weave the first strip over one and under the next strip in the square. Weave the second strip in the same way except that you weave under where you wove

over in the first strip. Continue until all the strips are woven. Other weaving may be done, using strips of any desired width and color, and working out various designs in the square. As stated elsewhere, these squares may be purchased all ready for weaving, if desired; but it is cheaper to make your own, and the practice in ruling and cutting is also desirable. See Figure 26.

2—Paper Box

Materials: Drawing paper, ruler and pencil, scissors, and paste.

Directions: Draw on a piece of paper a square just double the size you want your box to be. Fold over the lower edge on the upper, then the lower edge on the crease, then the upper edge on the middle crease. Turn the paper half around and do the same. You will now have sixteen squares. With the scissors cut the lower edge of the two top squares and the upper edge of the two bottom squares. Fold, so that the four middle squares form the bottom of the box. Paste the corner squares on the inside of the box. Another box may be made in the same manner and used as a cover. Heavier paper may be used for boxes to store seeds and other agricultural products.

3—Paper Basket

Materials: The same as for the paper box.

Directions: If a square basket is desired, it may be made the same as the box. Then paste the handle to it, letting the ends extend on the inside of the basket. A better form is an oblong about six by eight inches. Rule and cut a paper this size, being careful to get it exact. Fold it into two-inch squares, as directed for the box. Turn the paper with the long side up and down. Cut the two sides of the upper middle square. Do the same for the lower

middle square. Fold the corner squares over the middle squares and paste. Cut the handle and paste on the inside in the middle of the basket. After practicing with drawing paper, heavier material may be used for more permanent baskets. Two colors may be used, if desired.

4—Paper Table

Materials: Heavy folding paper, scissors, and paste.

Directions: Cut a square twice the dimensions desired for the table. Fold it into sixteen squares, as directed in making the box. Cut along the bottom of the two upper corner squares and along the top of the lower corner squares. Fold the ends over the corner squares and paste securely. The bottom of the box just made is the top of the table. Cut out an oblong from each side beginning one half inch from the corners, making it about three inches long. This forms the legs.

5—Paper Chair

Materials: Same as for the table.

Directions: Cut a square having about three fourths as many inches on a side as you used for the table. Fold this into nine squares, as directed in the first numbers. Cut along the top of the lower corner squares. Cut along both sides of the upper middle square. Fold the upper middle square toward you. This forms the back. Now fold one of the upper corner squares over the other and fold the rest of the squares to form a cube. Paste securely. Strengthen the back by pasting a paper of the same size over it. At the bottom cut out oblongs from each side to form the legs, as directed for the table. The back may be ornamented or left square.

6—Paper Lantern

Materials: Plain or colored folding paper, black paper, scissors, and paste.

Directions: Paste half-inch bands of dark or black paper across the top and bottom of a six inch square of colored paper or paper tinted with water colors. Wall paper makes pretty lanterns. Fold the bottom over on the top edge. Cut half inch slits from the crease to the black paper. Form circles with the black edges, making the top and bottom of the lantern. Paste securely. Cut the handle of the same material as the circular strips, making it the same width and six inches long. Paste it to the lantern, and hang where the lantern will show to advantage. A cardboard bottom may be inserted, and a small candle fastened to it.

7—A Jack O' Lantern

Materials: Drawing paper and yellow construction paper, or tinted drawing paper.

Directions: Draw an oval the shape of a pumpkin about three by three and one half inches, leaving a short stem at the top. Cut out. With this, trace another on yellow or tinted paper. Cut this out. Then cut holes for the eyes, nose, and mouth, and paste the colored paper over the other. Black disks of paper may be pasted on the pupils of the eyes, and triangles for the teeth. These may be used for invitations or hung up for decorations.

8—Halloween Fence

Materials: Manila drawing paper and yellow tinted paper.

Directions: Using a piece of drawing paper eight inches long and two and one half inches wide, cut out quarter-inch oblongs three and one half inches long, leaving a quarter of an inch at each end to represent the post. Cut out five of these, leaving four strips of paper for the boards. Do likewise on the other half of the paper. This will make three



Figure 27. Halloween fence, paper cutting and mounting.

posts and four boards, between each, with the posts projecting above and below. Paste the fence to a sheet of colored mounting paper. On the top of each post paste a small Jack O' Lantern about one and a quarter inches in diameter. See Figure 27.

9—Christmas Bell

Materials: Red construction paper about the weight of light oak tag, pencil and scissors.

Directions: On a five inch square draw or trace a bell, having the widest part at the bottom, the width of the square. A rounded projection in the middle at the bottom represents the tongue, or clapper, of the bell. Cut along the outline. A small hole punched in the top of the dome will enable one to hang the bell. It may be used to send an invitation to a school entertainment.

10—Christmas Stocking

Materials: Same as for number seven.

Directions: On a piece of red construction paper draw or trace a stocking about eight inches long and three inches wide at the top, and foot. Cut along the line. This may also be used to send an invitation or to hang up for Christmas decoration.

11—Santa Claus

Materials: Red cardboard, cotton, and metal fasteners.

Directions: Trace the upper part of the body down as far as the waist line, making this part about five inches from the top of the head to the waist, and about three inches across at the waist. Cut out. Cut the arms and fasten with a brass fastener, one on each side of the body. Cut out the lower limbs about four inches long and fasten on



Figure 28. Santa Claus at Christmas.

the under side of the waist line. Both the arms and legs will then be movable. Paste cotton on the head for hair and whiskers; on the hands for fur mittens; on the waist line of the coat and above the ankles for the tops of the leggings. This makes an interesting Christmas decoration.

12—Roving or Yarn Rug

Materials: Loom and needle, carpet yarn or string for warp, and rags, yarn, chenille, raffia, or roving for the woof.

Directions: Thread the warp back and forth through the notches at the ends of the loom. See that it is as tight as possible. Weave the woof over one strand of the warp and under the next, across the rug. Return, going under the strand you went over before, and over the next, and so on. If a long wooden needle is used,

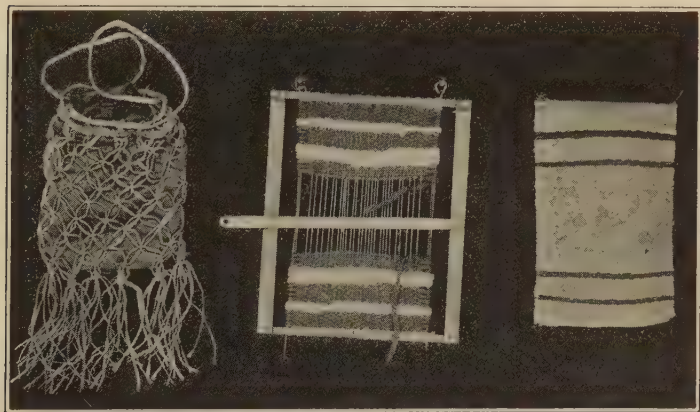


Figure 29. Raffia bag, yarn mat on a homemade loom and a raffia mat.



Figure 30. Roving and chenille rugs.

it may be drawn across the entire mat at once, thus saving time. Colored borders and stripes may be used, or designs worked in. The loom can be adjusted to any size of material. In a previous paragraph see directions for making a home-made loom. Keep the woof tight by packing it with the needle and fingers. When finished, remove and bind the ends of the warp with carpet yarn, or make a fringe. Raffia may be used instead of roving or yarn. See Figures 29 and 30.

13—Hammock

Materials: Cardboard loom, macrame cord in two colors, a large darning needle, and two brass rings about three fourths of an inch in diameter.

Directions: Fasten the warp into the rings which are attached to one side of the loom, and wind it around the ends of the loom over the notches, or through the holes, if those are used instead of notches. Any number of warp



Figure 31. A hammock made of macrame cord.

strands may be used, from sixteen to twenty being common. After the warp is stretched tightly, begin the weaving with the same material used for warp. The woof strands should be about half as long as the distance between the two rings after the hammock is removed. Colored stripes may alternate or borders may be used. When finished, remove from the loom and make a fringe.

14—Reed Napkin Ring

Materials: Wooden loom, number three or four rattan, number one rattan, flat reed and a knife.

Directions: Make a small wooden base of basswood or pine two and one half inches square and a quarter of an inch thick. On this base draw a circle two inches in diameter. With the ruler find the perpendicular diameter, and place a dot at each end of it on the circle. Do the same for the horizontal diameter. Again divide the space between the dots into three equal parts, until you have twelve dots on the circle, the same distance apart. With a brace and bit, or gimlet, bore holes through the base at the dots. These should be a trifle larger than the size of rattan you want to use for the frame of the napkin ring. Cut twelve

pieces of rattan about the size of a match and one and one half inches long. Place these firmly in the holes of the base. Using rattan a size smaller as a weaver, weave four times around the base, going inside of one upright and outside the next. The second time around weave opposite to the first time, and alternate each time. The weaver is moistened so it is tough and pliable. Pull it tight, and press firmly against the base. Next use flat reed for two layers and weave in the same way. Then weave four rounds more of the same size rattan as on the bottom. Fasten the last end securely. Pull the ring off the base, being careful not to leave any of the uprights in it. With number one rattan, bind the edge together firmly by fastening one end around the top of an upright, crossing to the next lower end, twisting around this end, crossing to the next upper end, and so on, until you have gone around the ring twice and finished binding each upright. Cut off the ends of the uprights. Your napkin ring should be strong and somewhat resemble a snare drum on the outside. Be sure to keep the material moist while working. See Figure 32.

15—Raffia Picture Frame

Materials: Chartboard and raffia.

Directions: Cut out a circle from the cardboard. It may be any desired size, but about six inches in diameter is common. Cut another circle in the center, leaving a hole in the middle about two and one half inches in diameter. Select broad, smooth raffia. Moisten it, and wind carefully around from center to outside. When finished, sew a braid of raffia around the outer edge, making a loop at the top by means of which to hang it up. Put in the picture. Oval or square shape frames may be made according to the individual preference.

16—Rattan Mat

Materials: Number three rattan for spokes, raffia and number one rattan for weaving.

Directions: For a six-inch mat you will need to use pieces of rattan fourteen inches long in order to make the border and fasten the ends. Cut eight pieces of the number three rattan fourteen inches and one piece eight inches, as it is easier to weave with an odd number of spokes. Take four of the long spokes and cut a slit one half inch long exactly in the middle of each. Draw the other four long spokes half way through these slits, making a cross. Put in the short spoke until the end shows on the other side. With a needle weave raffia over one and under the next spoke, starting in the center, until you have woven a little circular mat about an inch all the way round from the center, or two inches in diameter. You will thus make a firmer middle than you can usually get with the rattan. Now use number

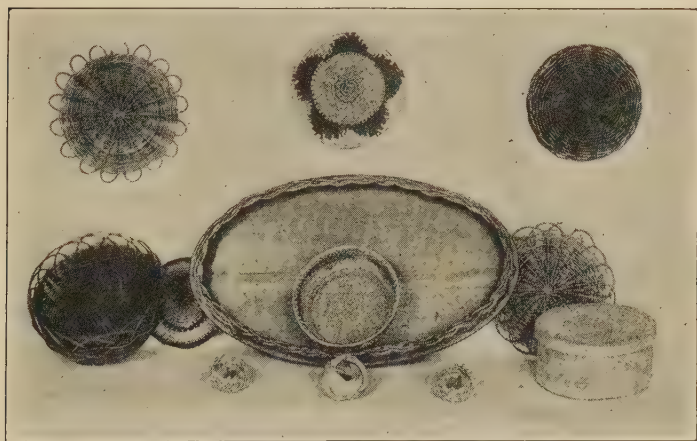


Figure 32. Rattan and raffia work showing serving tray, baskets, collar box, mats and napkin rings.

one rattan for the weaver in the same way, and keep the seventeen spokes the same distance apart, until you have a mat about six inches in diameter. Now sharpen the ends of the spokes, moisten them so they will bend easily, and pass each one in front of the next spoke to the left, and push it down beside the second spoke, thus making a loop about two inches across and an inch high. Do this with each spoke until the border is finished. While the mat is moist, see that it lies perfectly flat. When dry put on a coat of clear or colored shellac. See Figure 32.

17—Rattan Basket

Materials: Number four and number two rattan, and plain raffia.

Directions: Cut eight pieces of number four rattan from eighteen to twenty-four inches long, depending upon the height of the basket desired, twenty inches being a good length. Cut one piece an inch or two more than half this length for the odd spoke. Proceed as for the mat in number 16, using the raffia center, until you have a four-inch bottom. Moisten the spokes, and turn each one up as you pass the weaver around it. Keep the weaving pressed down firmly, the spokes the same distance apart, and be very careful in shaping your basket, that it may be even all the way around. When through weaving, fasten the end securely. Make a border with the spokes as for the mat, only pass the spoke to the left in front of two spokes instead of one, and push it down beside the third. This will strengthen the top. Be sure the shape is good. Let dry. Shellac, natural or colored. See Figure 32.

18—Raffia and Rattan Mat

Materials: Number two or three rattan, raffia, needle.

Directions: Moisten the rattan and begin a coil. Take a needle full of raffia. Wind the end of the coil for a

short distance and fasten it together in a ring as small as you can draw it. Continue coiling the rattan, and winding it with raffia. Wind from you. About every third wind, pass the needle between the ring formed and the next coil of rattan, thus fastening the rattan to the ring. The third coil is fastened to the second in the same manner and so on until the mat is completed to any desired size. Colors may be used for as many coils as you wish, making borders. This makes a soft, durable mat.

19—Collar Box

Materials: Same as for number eighteen.

Directions: Make the bottom six inches in diameter, the same as the mat was made. Then turn the coils up to form the circular side of the box. If two pieces of number two or three rattan are wound together instead of one piece, the effect is more pleasing, and you will have a firmer box. Continue the coils until the box is three inches deep. Now make a cover in the same manner as the bottom was made, turning the edges up half an inch, so they will fit down over the box, when inverted for the cover. This may be fastened on, if desired. See Figure 32.

20—Wastebasket

Materials: A circular base of one half an inch of pine or basswood nine inches in diameter, heavy rattan for spokes, number seven or eight, and rattan about two sizes smaller for weaving.

Directions: Drill a row of twenty-five holes one half an inch from the edge of the wooden base. Cut twenty-five spokes of heavy rattan about two feet long, and put them through the holes so that they extend about three fourths of an inch below. Using rattan about two sizes smaller as a weaver, turn the bottom side up, and weave

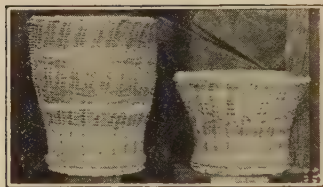


Figure 33. Rattan wastebaskets.

six or eight rows around the spokes, as in basket weaving. Then fasten the ends of the spokes securely, making a close border. Now turn the bottom over, and press the board down firmly on the rattan base. Begin to weave above the board, keeping the twenty-five spokes the same distance apart, and shaping the basket as you proceed. Make to any desired height, usually about a foot, and fasten the top of the spokes as for the mats and baskets. Cut off ends of spokes. Colored rattan will make effective designs. Finish with shellac. See Figure 33

21—Serving Tray

Materials: Wooden base, pine or basswood, and rattan.

Directions: Make a wooden base of half inch material in an oval about fifteen inches long and ten inches at the widest part. Bore holes for heavy rattan as for the basket. Make the spokes long enough to weave and fasten below and to make the tray about two inches deep with a close border on top. Weave with number five or six rattan and use number seven or eight for the spokes. This makes a very firm and useful tray. It should have two coats of shellac for finish, either dark or natural. See Figure 32.

22—Clay Modeling

Materials: Clay, oil cloth water colors and shellac.

Directions: Prepare the clay the day before it is to be used. Do not have it too wet, just moist enough to work well. Knead until oily. Mould into shape of object modeled. If fruit, tint with water colors. Let dry. Shellac with natural finish. See Figure 34.



Figure 34. Clay work showing fruit and geometrical forms.

23—Rope Work

Rope is used so much on the farm that every boy, at least, should know how to take care of it, make a splice,

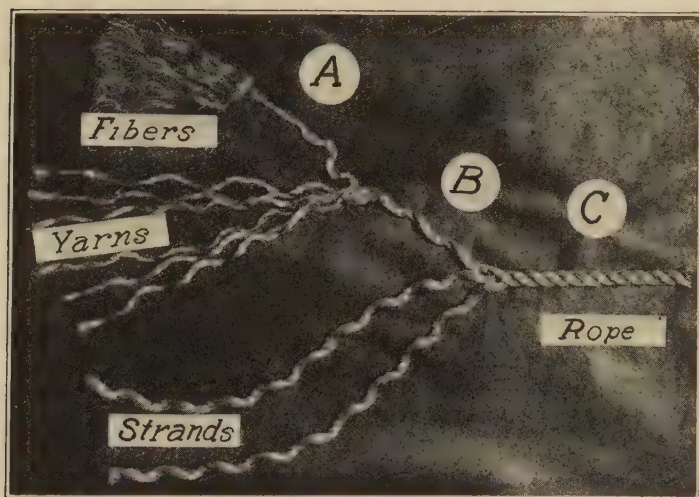


Figure 35. Showing the construction of rope. The fibers are woven into yarns, the yarns into strands, and the strands into rope.

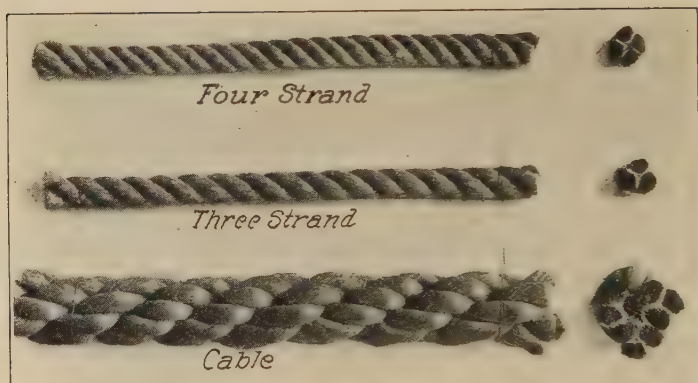


Figure 36. Strands are twisted "left hand" to form ropes and the ropes are twisted "right hand" to form a cable.

and tie the most common knots. Rope is made from the fibers of several different plants, as manila, sisal, and common hemp, flax, cotton, jute, and cocoanut fiber. These fibers are twisted in yarns, the yarns are twisted the opposite directions into strands, and the strands twisted in the same direction as the fibers, into rope. The opposite twisting keeps the rope from untwisting. See Figure 35.

The strength of rope depends upon the quality of the fiber, the number of strands, the workmanship, and the kind of preservatives on the fiber. The strength naturally decreases with age, wear, and exposure. A safe load must be much less than the breaking strength, and for old ropes it must be a matter of good judgment. Rope should be kept in a dry place. If it gets wet, it must be stretched out straight to dry. A hardened rope may be made pliable again by boiling in soft water.

"Whipping" is used to prevent the ends from untwisting. This is done by putting a string under a strand of the rope about three inches from the end and allowing one



Figure 37. Whipping or wrapping the end of a rope, showing the first three steps in the process.

end to hang loose. Wrap the other end of the string once around the rope, and then fold the loose end over. Continue wrapping the string tightly around the rope and string until you have wrapped about half way to the end of the rope. Fold the loose end back to form a loop that

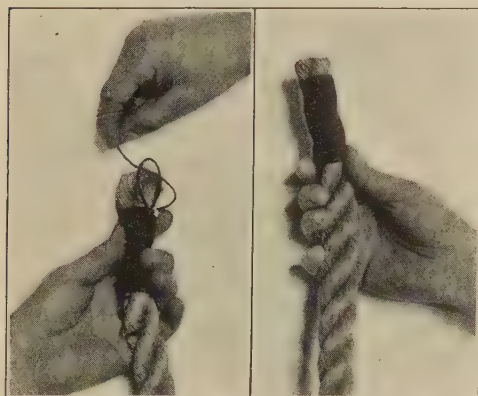


Figure 38. The final steps in whipping.

extends a little beyond the end of the rope. Wrap the string around the rope and loop, and pull the other end until it draws the string under the whipping as far as possible. See Figures 37 and 38 showing the operation.



Figure 39. Forming the "bight" or loop for a figure eight knot.

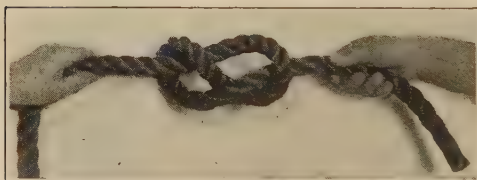


Figure 40. The completed figure eight knot.

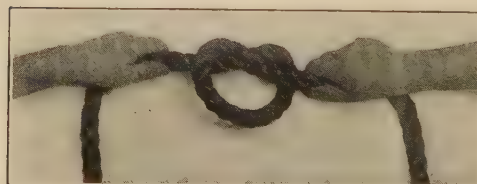


Figure 41. The overhand knot before drawing tight.

bight through which the end of the rope is passed. The loose knot is shown in Figure 41.

The square knot is used for tying rope securely together. The knot may be tied by studying the illustrations. Cross the ropes as shown in Figure 42. Move end B as shown by the arrow until it is in the position shown in Figure 43. Move ends A and B as shown by the arrows until

The figure eight knot is used for preventing the strands from untwisting, and for forming a hand hold at the end of the rope or at any point between the ends. In making it form a bight as shown in Figure 39, then move the end as shown by the arrow in Figure 39 until it is in the position shown in Figure 40. Draw it up tight.

The overhand knot is used for the same purpose as the figure eight knot and is made by forming a

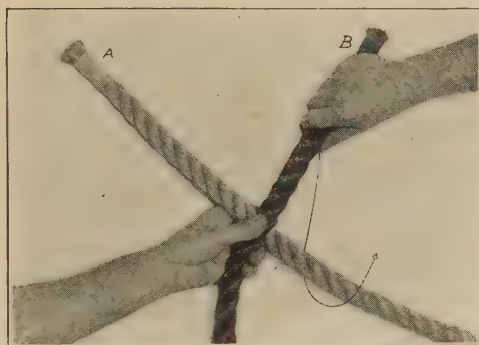


Figure 42. Crossing the knots to tie a square knot

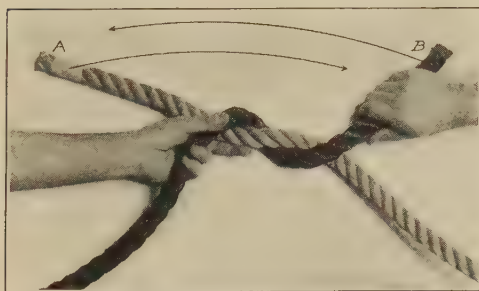


Figure 43. The second step.

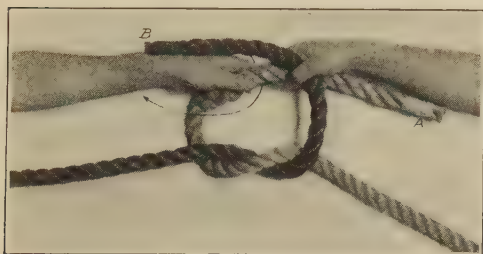


Figure 44. Forming a loop by crossing ends A and B.

they are in the position shown in Figure 44. Be sure the proper end is nearest you at the point of crossing in the right hand. Move end B, as shown by the arrow, until it is in the position shown in Figure 45, and draw up tight as shown in Figure 46. Both parts of one rope should be in front of or behind the other, as shown at points C and D in Figure 45, not as shown at points E and F of the granny knot in Figure 47.

The granny knot, shown in Figure 47, is of very little use and tends to slip under a pull. It is tied only by those who do not know the

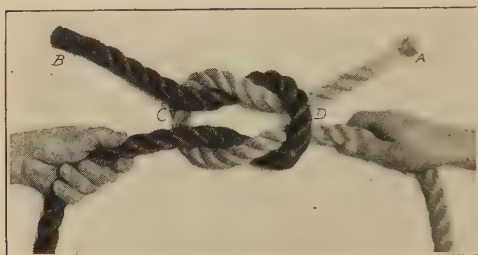


Figure 45 End B brought under to complete the knot.

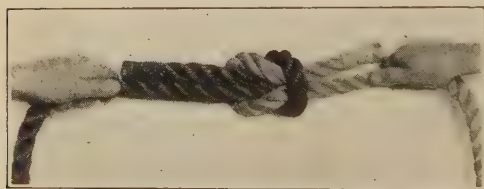


Figure 46. Pulling the square knot tight

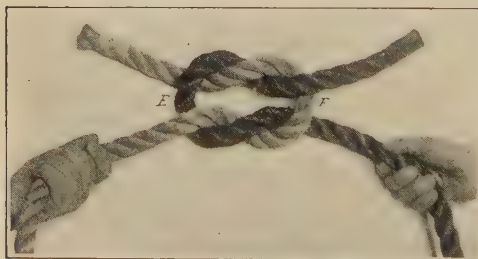


Figure 47. The granny knot. A poor knot; note the difference between it and the square knot.

difference between it and the square knot.

The bread-box knot, shown in Figure 48, looks very much like the square knot, but it is likely to slip. The difference in the finished knot is in the positions of the ends A and B, as can be seen in comparing Figures 45 and 48.

The slip knot is used when a loop is wanted that will slip up tight around an object. There are four steps in tying it. Hold the rope as shown in Figure 49. Move the right hand so that point A moves as shown by the arrow

in Figure 49, thus forming a round turn in the left hand as shown in Figure 50, and allow the right hand to slip on the rope to point B. Move the right hand so that point B moves, as shown by the arrow, to the position shown in Fig-

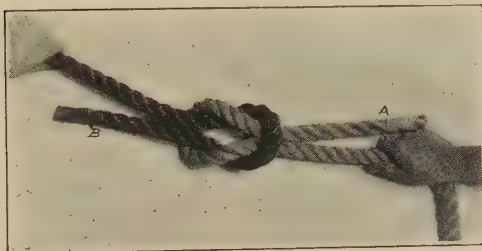


Figure 48. The bread-box knot. Similar to the square knot but apt to slip.

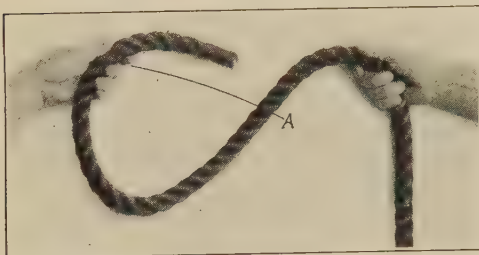


Figure 49. Starting the slip knot.

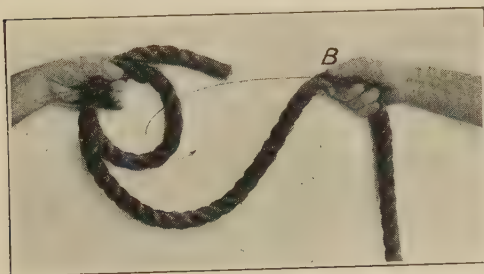


Figure 50. The second step.

ure 51. Draw the overhand knot that has been formed up tight, and the finished knot should appear as shown in Figure 52.

The slip knot and half hitch make a combination that form a permanent loop that will not slip. Tie a slip knot by the method shown in Figures 49 to 52, except that you start with the short end held in the right hand and the long part in the left hand. The slip knot is shown in Figure 53. Move end A as shown by the arrow. A half hitch is thus made around the long

end as shown in Figure 54. Complete the knot by drawing up tight as shown in Figure 55.

The double bowline is used when a loop is wanted be-

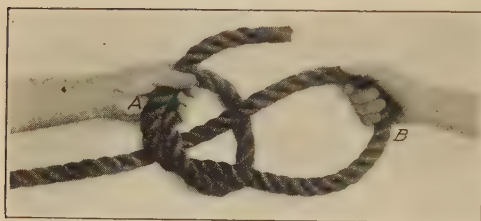


Figure 51. The point B in figure 50 has been passed through the loop.

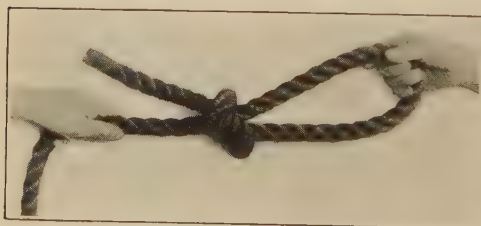


Figure 52. The finished slip knot.

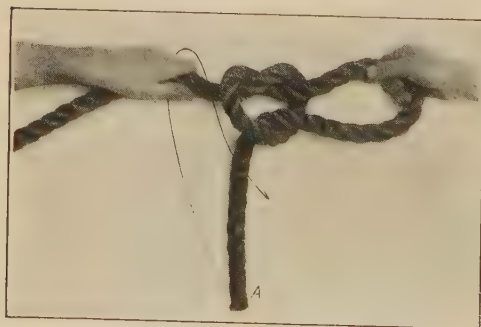


Figure 53. Beginning the slip knot and half hitch.

may be tied through a loose ring.

For splices and other knots see various bulletins and special books on this subject.

tween the ends of a rope that will not pull tight or slip. It is tied as follows: Grasp the rope as shown in Figure 56. Tie an overhand knot as shown in Figure 57. Fold loop A back over the over-hand knot as shown by the arrow, and then grasp the knot with the left hand exactly at point B as shown in Figures 57 and 58. Hold the double bight securely in the left hand and draw that part of the rope which forms loop A through the double bight, as shown by the arrow in Figure 59. This knot

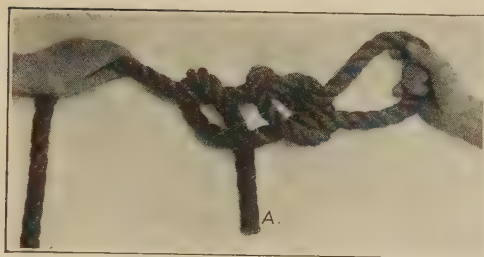


Figure 54. The half hitch added.

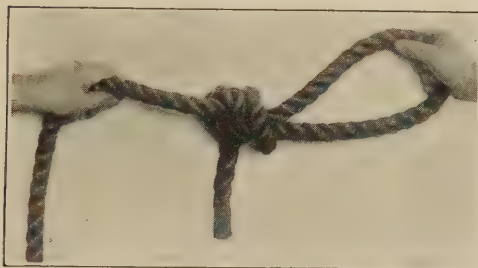


Figure 55. Completed by drawing up tight.

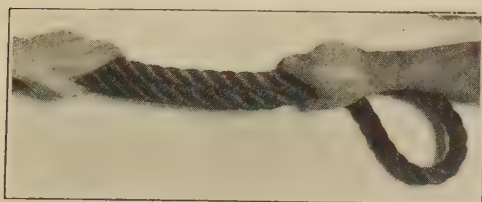


Figure 56. Starting the bowline knot.

The block and tackle is used for lifting heavy loads. The more ropes in the "tackle" the greater the weight that can be lifted with a given power. Figures 60 and 61 show how to thread double and triple blocks. The part of the rope to which the power is applied is called the fall-rope, and the block from which it passes is called the fall-block. The fall-block in Figure 61 is a triple block. The others shown are double blocks.

Passing the rope through the blocks in the proper way for use is called reeving. One of the blocks always has a becket or projection to which the rope is fastened. In reeving blocks it is best to pass the rope through the blocks in the opposite direction to that in which

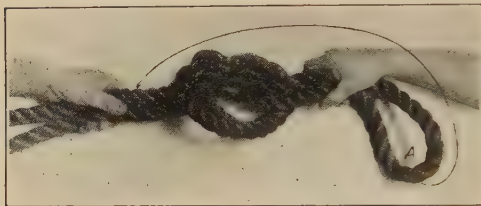


Figure 57. The second step, or overhand knot.



Figure 58. Loop A folded back as shown by arrow in figure 57.



Figure 59. The final step of the bowline knot.

it runs when the blocks are in action. This saves pulling all the rope through the block. Fasten the rope to the becket and pass it over the sheave farthest from the becket and around the pulleys in each block as shown in the illustration.

Common wooden blocks with iron sheaves are used for all ordinary work. For very heavy work, such as stump pulling, special blocks with heavy hooks and straps may be obtained. In ordering, the size of

the rope to be used, the number of sheaves, and whether a becket is desired should be explicitly stated.

Steel blocks may be had, as, also, blocks of different construction for wire rope.

All blocks and rope must receive the very best of care. Otherwise their efficiency will be considerably impaired, involving the possibility of both loss and danger.



Figure 60. Simple "block and tackle."



Figure 61. Showing another form of block.

REFERENCES

Agricultural Engineering by Davidson; Knots, Splices and Rope Work by A. H. Merrill; Knots, Hitches and Splices by H. W. Riley; Kent's Mechanical Engineer's Pocket Book; The Blue Book of Rope Transmission; Rope and Its Use on the Farm by J. B. Frear (Minnesota Agricultural Experiment Station Bulletin 136) and Rural School Agriculture Bulletin No. 1, Minnesota Agricultural Experiment Station.

CHAPTER XVIII

SEWING IN THE RURAL SCHOOLS

The elementary work in sewing, where the teacher is prepared to give instruction, is no longer regarded as a fad even in the most conservative districts, as practically all recognize the value of systematic work of this character. The daughters for obvious reasons do not receive the domestic economy training in the home that their grandmothers received. Hence the necessity of practical training in the schools. Ultimately the school day should be divided into two sessions, one half the day being given to academic studies, and the other half to industrial work. The average community is not yet ready for this departure, as public sentiment must support any successful course in the schools. In the meantime the general period of an hour twice a week should be devoted to sewing.

The equipment needed for a rural school is not elaborate. A thimble, needles, thread, emery ball, tape-measure, shears or scissors, one pair of buttonhole scissors, and the material used in the model and garment making. For some of the advanced work a sewing machine would save time, and the students would get the practice, if they could use one. Some rural schools rent a machine for all or part of the school year, as it is needed. Such an arrangement would not be expensive and would be desirable, if room in the school permits.

A thimble must be used when sewing. Each child should furnish her own and have it fit the middle finger. A thimble made of silver, celluloid or aluminum is better than one of brass, for the latter may cause infection in case of a sore on the finger. The emery bag is filled with pow-

dered emery, and may be purchased for five cents at any store. When the hands become moist and sticky, the needle does not push through the cloth easily, due to the rust formation. In such a case, polish the needle by running it through the emery bag a few times. Scissors are large enough for school use, and may be purchased for twenty-five or thirty cents. Instruments under six inches long are scissors; those six inches or over are shears. These may be brought from home or the school may own enough for two pupils to use one pair. They must always be kept sharp, or they will neither cut easily nor accurately. Do not allow them to drop, as they may be loosened or even broken. It is well to remember that tools poorly taken care of will not give good service.

Needles and thread must be used according to the work to be done. Mrs. Blair, in her *Sewing Tablets*, suggests the following:

The size of thread used should be in proportion to the thread of the material, for coarse gingham, about number 70, for fine soft muslin, number 100. It is always best to use a fine needle and thread for hemming, as the stitches show less. The following sizes of needles are commonly used with the corresponding number of thread:

Needle	Thread
Number five.....	Silkateen and Coarse Cotton
Number seven.....	Fifty
Number eight.....	Sixty, eighty
Number nine.....	Ninety
Number ten.....	One hundred
Number eleven.....	One hundred twenty
Number twelve.....	One hundred fifty

The correct length of a needleful of thread is from the tips of the fingers to the shoulder of the extended arm. Do not bite the thread; cut it with the scissors or knife.

Thread the needle with the end of the thread cut off from the spool, as this will prevent knotting. Be sure to baste all seams before attempting to sew them. Where the dimensions of the material are given, the first is to be on the length of the goods, and the second on the width.

Correct position for sewing is very important. The body should be erect, and both feet squarely on the floor. The light should come from the left unless the student is left-handed. Hold work high enough to be comfortable.

The plan of the course in sewing is to begin with the fourth year, combining the fourth and fifth-year students for the elementary work, and the sixth and seventh-year students for the advanced work, doing half of the two-year course each year. This plan corresponds with the course suggested for the boys in manual training for the Second and Third Divisions. As there are usually not many students in a rural school in these classes, the teacher can conduct the work in sewing and supervise the boys' work in manual training at the same time. Instead of calling the work "first year," and "second year" for each division, it is given as "one year," and "other year," as it naturally alternates when combined in this manner, and what is first year work for one class, is not such for the next. The number of lessons required for each piece of work is based upon the general period of one hour. Naturally, some will work faster than others; so the time is merely suggestive for planning the work.

CLASSIFICATION OF STITCHES

WORK FROM RIGHT TO LEFT

Basting is used to hold two pieces or two parts of one piece of cloth in the exact relation desired and used as a guide in sewing. The stitches are made over and under

the material, working from right to left. If stitches are of uneven length, have long stitches over and short under.



Figure 62. Basting stitch.

Running is light stitching. The stitches are made the same as in basting, but are short and of even length.



Figure 63. Running stitch.

Gathering. For gathering the running stitch is used. When several inches have been gathered on the needle, bring the double thread from the eye of the needle, under the point and then under the eye, making the figure eight, and drawing the thread tight. Continue until material is held securely on the needle. To place the gathers, hold them firmly as they are on the needle, between the thumb and forefinger of the left hand, and with the index finger of the right hand at the back of the gathers, and the thumb on the opposite side of the material, bring out the tiny gathers. Then pull the material straight till the gathers are fixed.

Backstitch. To make a backstitch, insert the needle and make a stitch under the material twice the desired length; again insert the needle, going back half this distance and forward twice the length of the backstitch. The back-



Figure 64. Backstitch.

stitch is used where strength is desired or to resemble machine stitching. The second view shows a row of back-

stitches as it would be seen, if material were removed from the right-hand side of it.

The combination stitch, or a needleful of running stitches and a backstitch, is used where more strength is required than obtained with running stitches.



Figure 65. Combination stitch.

Hemming. When hemming, hold the material over the index finger of the left hand. To fasten the thread, place the end of it about half an inch under the edge of the hem. It will be fastened by hemming over it. Keeping needle parallel with the edge of hem, take one thread of the material and one of the edge of the hem. Make the stitches of the same length and the same distance apart.

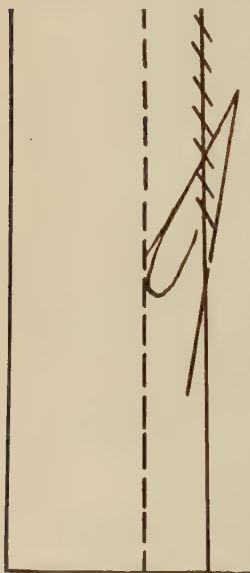


Figure 66. Hemming.

Buttonhole stitches are worked close together and used to finish raw edges. See "Buttonholes" for position of needle, position of thread and finished edge.

To overhand two pieces of cloth together, hold the material between the index finger and thumb of the left hand so that the creased edges are in a horizontal position. The stitch is made by bringing the needle over and then straight through the two edges. Make stitches shallow and close together. Pull the thread tight for each stitch.



Figure 67. Overhand stitch.

For **hemstitching**, pull six threads, fewer if the material is coarse, twice the desired width of the hem from the end of the material. Turn and baste the hem. Hold the material and needle as for hemming. Put

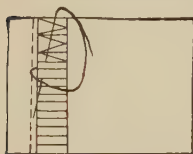


Figure 68. Hemstitch.

needle under three or four threads and hold the thread as in making the chain stitch. Draw the thread tight. Make a stitch similar to hemming. This will bring the thread to the middle of the next group of threads. Hold the thread down with left thumb, put the needle under the next group of threads, and continue as above.

WORK FROM LEFT TO RIGHT

Overcasting is used to keep the raw edges of the cloth from raveling. It is made by bringing the thread over the edge and putting the needle through the material. The stitches are an eighth of an inch in depth and the same distance, or a trifle more, apart.



Figure 69. Overcasting.

The **loop stitch** is used to finish the raw edges of flannel or of doilies. See illustration.

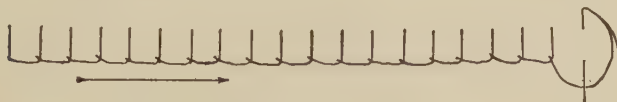


Figure 70. Loop stitch.

WORK TOWARD ONE

The **chain stitch** is an ornamental stitch. In making it, the thread is held to the left with the thumb to keep it under the needle. Always insert the needle within the last link.

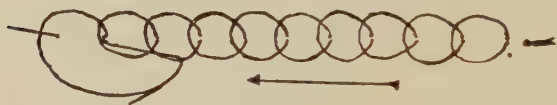


Figure 71. Chain stitch.

The **featherstitch** is used for ornamentation. When making the stitch to the right, hold the thread to the left; when making the stitch to the left, hold the thread to the right of the general direction of the stem. Clusters of two or three stitches to each side may be made instead of the single one to each side.

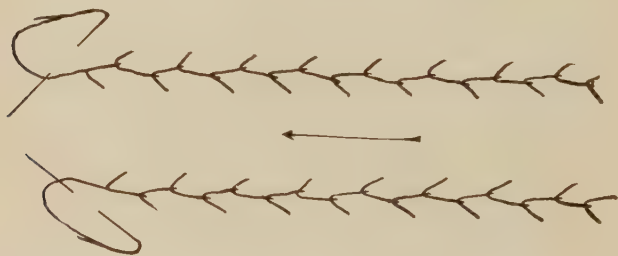


Figure 72. Featherstitch.

WORK AWAY FROM ONE

The **catstitch** is an ornamental stitch. It is also used in making flannel seams and hems. The row of catstitches grows in length away from one, but the needle is inserted toward one.



Figure 73. Catstitch.

SECOND DIVISION. ONE YEAR

1—Stitches. (Six Lessons.)

Materials: One piece of one eighth inch checked apron gingham sixteen inches by six inches, number 7 needle and red cotton thread number 50.

Directions: Count down forty-two checks, fold and crease between checks. Knot the thread for basting only, fasten thread with short running stitches and backstitches.

Basting Stitches. 1st row. Down from folded edge two checks, under two checks, over two checks, etc. 2nd row. Down from first row four checks, under one check over three checks. 3rd row. Down from first row four checks, under one check, over one check.

Running Stitches. 4th row. Down from third row four checks. Make two stitches to a check.

Backstitching. 5th row. Down from fourth row four checks, making stitches one eighth inch long, half way across practice piece. The other half, make stitches one sixteenth inch long.

Combination, or running stitches with the backstitch for every needleful. 6th row. Down from fifth row, four checks. Make a needleful of running stitches, then a backstitch, then the running stitches again, and so on.

Chain Stitch. 7th row. Down from sixth row four checks. Make each link one eighth inch long.

Catstitch. 8th row. Down from seventh row three checks. Make stitches across two rows of checks. Start at left-hand edge and work away from you.

Feather, or Brier Stitch. 9th row. Down from eighth row three checks. Make stitches across two rows of checks. Start at the right-hand edge and work toward you.

Loop Stitch. 10th row. With the lower edge toward you, start at the left and finish edge with loop stitch. Make stitches two checks deep and two checks apart.

2—Needlebook. (Six Lessons.)

Materials: One piece of art canvas five inches by three inches, one piece of flannel five inches by three inches, one tapestry needle number 22 or 23; one crewel needle number 7; silkateen.

Directions: Loop stitch the edges of the canvas cover and the leaves. Sew the cover and leaves together with silkateen and tie the ends into a neat bow. The cover may be ornamented with one of the stitches learned.

3—Holder. (Four Lessons.)

Materials: One piece of outing flannel six inches by twenty-four inches, number 7 crewel needle, and silkateen.

Directions: Fold the strip of outing flannel double, having the two ends meet at the middle. Fold again. Baste around the three edges. Loop stitch the four edges, making the four corners alike. See needlebook cover. At one corner make a loop of two or three threads of silkateen, then loop stitch over them.



Figure 74. Corner of needlebook cover.



Figure 75. A different arrangement of corner stitches.

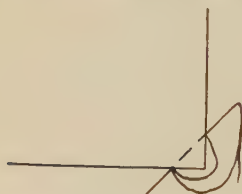


Figure 76. Loop at corner of holder.



Figure 77. Fold material on dotted lines.

4—Hemming Dust Cloths, Towels, or Dishcloths. (Four Lessons.)

Material: A yard of cheesecloth, for the first; thirty inches of linen toweling or a bleached flour sack—if large size, cut in two—for the second; one third of a yard of linen toweling, or a large sized bleached flour sack cut into four squares for the third.

Directions: Turn one fourth inch hems, baste and fell. To turn the hem, hold the material so that the raw edge is up, turn the edge down about three sixteenths of an inch, starting at the right hand and working toward the left, if right-handed. Work in the opposite direction, if left-handed. Turn a one fourth inch hem, holding the material

in the same position, and working in the same direction as when turning the edge. Baste and fell.

5—Stockinet Darning. (Six Lessons.)

Materials: Darn woolen hose with yarn the same size as in the stocking, and cotton hose with darning cotton the same size as that in

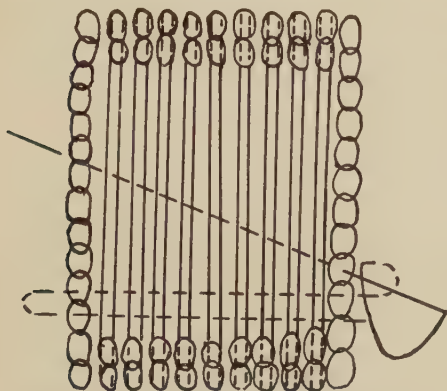


Figure 78. Stockinet prepared for darning.

the material. Have the pupils bring their own stockings

from home to darn. Use number 7 crewel needle for medium weight cotton and cashmere hose, number 5 or 6 for heavier weight yarn stockings.

Directions: Cut away worn material, making a rectangular hole. Starting at one corner, make one row of running stitches around the hole about one eighth of an inch from the edge. Draw up the thread, leaving the hole a little larger than natural size. Tie ends of darning cotton for the child who is beginning to darn. Fill in the warp, allowing two threads for each row of stitches in the stockinet. Care must be taken to leave the threads equally loose. Make running stitches three sixteenths of an inch into the stockinet at each end of the threads. When all the warp threads are supplied, begin filling in the woof by weaving over and under the warp threads. Always put your needle over the threads that the needle went under in the last row. Press the needle down close to the preceding thread to make a close darn and to avoid drawing the woof threads too tight. Make running stitches into the material at the sides the same as at the ends. In a good darn there are raw edges on neither the right nor wrong side, and the edges are smooth and soft.

6—Gingham Sewing Bag. (Eight or Nine Lessons.)

Materials: One piece of one eighth inch checked gingham twenty-four inches by eight inches; two pieces of tape, each twenty inches long and one fourth of an inch wide.

Directions: Make a one eighth inch hem on each of the two long edges. At each end make a two-inch hem. Fold double, crosswise, right side in. With all edges even, baste through the hems at the edges. Begin overhanding the edges together just below the two-inch hems. Fasten the thread by sewing over three eighths of an inch of the

end of it. In overhanding, make your stitches shallow, close together, and draw the thread quite tight as you make each stitch. Fasten the thread at the end of the seam by making four or five stitches very close together. Remove bastings. Turn right side out, push out corners, and flatten out the overhand seams. Measure down one and one half inches from the top and backstitch or use running stitch, with a backstitch every third or fourth stitch. This makes a one half inch casing for the tape. Start one piece of tape at one edge of the bag and run it all the way around. Put the other piece in, starting at the opposite edge. Tie the two ends of each tape into a very small bowknot.

7—Buttonholes. (Five Lessons.)

Material: One piece of one eighth inch checked gingham five inches by four and three fourths inches, number 50 thread, and number 7 needle.

Directions: At each end and on one side turn edge down one fourth inch. Divide the width into thirds, fold

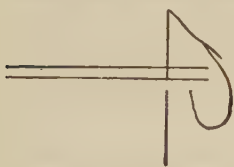


Figure 79. First stitch of buttonhole.

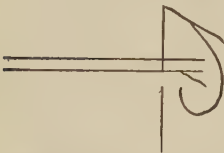


Figure 80. Second stitch of buttonhole.

the raw edge in, and the turned-in edge over. Baste all four sides, keeping edges and corners even. The right-hand portion of a woman's garment buttons over the left. Consequently, the buttonholes should be worked in the right-hand portion. Cut horizontally on the thread of the goods a medium-sized buttonhole one fourth inch in from the folded edge. Use buttonhole scissors. Hold practice piece in left hand so that the folded edge is to the left and the buttonhole runs along the length of the finger. Do not

pull edges far apart, because they ought to touch when the buttonhole is worked. Insert needle one eighth of an inch from the near edge at right-hand end of buttonhole.

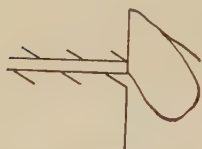


Figure 81. Position of needle for buttonhole stitch.

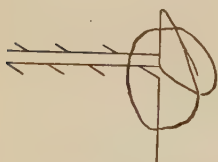


Figure 82. Position of thread for buttonhole stitch.



Figure 83. Finished edge of buttonhole.



Figure 84. Rounded end, or fan, of buttonhole.



Figure 85. Pulling thread to make fan.

Overhand the edges of the near edge of buttonhole; turn the practice piece so that the other edge becomes the near edge. Overhand these edges. Do not make the stitches close nor draw the thread tight. It is best not to overhand at the ends of buttonholes. Turn the buttonhole half way around to its original position. At the right hand end of the buttonhole, insert the needle one eighth of an inch from the near edge. Take the two threads from the eye of the needle and bring them from the right toward the left under the point of the needle. Draw the thread quite tight. Continue along the near edge of the buttonhole, making the stitches close enough so that the threads barely touch one another. The outer end of the buttonhole is fanned. It must be carefully planned. One stitch extends from the end of the buttonhole. Space the other stitches. These are farther apart in the material and closer together at the corner of the buttonhole than the stitches along the edge, but they are of the same depth. After each stitch, draw the thread tight and in the direction of the buttonhole stitch. The little knots or purls

tion of the buttonhole stitch. The little knots or purls

at the end of the buttonhole must be closely packed, one beside the other. When working the fan, turn the piece gradually around, so that you always put the needle in directly toward you. Continue, buttonholing the second edge in the same way as the first. Finish the inner end of the buttonhole with a bar. Make two or three stitches the length of the first and last stitches. Work four or five buttonhole stitches over these threads, but do not take in any of the cloth. Buttonholes running lengthwise in a garment are barred at both ends.

8—Sewing Apron. (Twelve Lessons.)

Materials: Use twelve and one half or fifteen cent checked gingham. One piece, twenty-four inches by twenty-two inches, one piece, the waist measure plus three inches by two and one half inches, number 7 needle, and number 60 or 70 thread for basting and gathering; number 8 needle and number 80 thread for hemming, overhanding and backstitching; number 7 crewel needle and silkateen for the ornamental stitch.

Directions: Make a one eighth inch hem at each of the edges of the large piece; a one and one eighth inch hem across one end. Have the three hems face the same side. On the right side ornament the wide hem with catstitch or feather stitch. Hold the right side of the apron toward you, the wide hem down. Turn this end of the apron up to form an eight-inch pocket. Baste at sides, keeping edges of hems even, then overhand. Next remove basting threads, press seams flat, turn pocket and push out corners. Ornament the hem above the pocket with the same stitch as used on wide hem, and continue to the bottom of the apron. Divide the pocket into three equal sections and catstitch or feather stitch between them. Gather apron

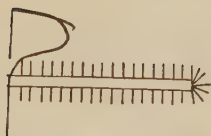


Figure 86. Needle in position to make bar at end of buttonhole.

across the top. Baste to band, having fullness hang straight from the band when worn. Use the backstitch when sewing it on the band. This seam faces the wrong side, when the garment is made by hand. Turn the other edge of the band and fold over this seam, just to cover the stitches; turn in the edges of band beyond the edges of the apron, and at the ends of the band. Baste. Overhand ends and lower edge of the band at each side of the apron, and fell the band down across the apron. Ornament both edges and ends of band. Work a buttonhole in the right-hand end of the band. Sew a button three fourths of an inch from the other end. In sewing on a button the stitches should extend in the same direction as the buttonhole. The thread may be knotted, if the knot is put on the right side so that the button will cover it. Fasten the thread securely when the button is sewed on.

9—Hemmed Patch. (Three Lessons.)

Materials: For the practice piece, or model, use one eighth inch checked gingham. One piece six inches square, one piece four inches square, number 7 and 8 needles, number 70 and 80 thread.

Directions: Cut the material between checks. Place the small square in center of large square so that the warp threads run the same direction in both pieces and so that white stripes fall on white stripes and colored stripes fall on colored stripes. Cut out a square in center of large square, eight checks smaller than patch. Cut diagonally through one check at each corner of this hole and turn back each of four edges one check. See illustration of hemmed patch. Place patch over the hole, matching stripes and warp. Baste

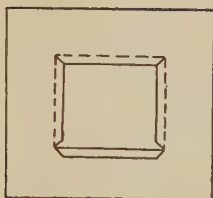


Figure 87. Preparation for hemmed patch.

patch in place, two checks in from edge. Turn in edges of patch one check. Baste near the turned-in edge. Turn the other side toward you, and baste the turned-in edge to the patch. Hem this edge down; also hem around the patch on the wrong side. Overcast the edge of model. Use the coarser needle and thread for basting, the finer for hemming and overcasting.

10—Application of Hemmed Patch. (Three Lessons.)

Materials: A gingham, or calico apron, dress, or grain sack; same kind of material for patch; needles and thread of suitable size.

Directions: Cut out the worn portions, making a square or rectangular hole. If the material is figured, striped, or checked, match the design before cutting the patch. Allow one half inch on each of the four edges of the patch. Proceed as in the hemmed patch.

11—Hemstitched Towel. (Five Lessons.)

Materials: One yard of huckaback or linen crash; number 7 needle and number 70 thread.

Directions: Draw six threads two and three fourths inches from each end. Turn in one fourth inch, then turn hem and baste securely, making sure that edges are even at ends of hem. Overhand ends of hems. Hemstitch hems.

12—Darning Three-Cornered Tear. (Three Lessons.)

Materials: A piece of light colored woolen material, ravelings of the same material, or thread to match, a number 7 crewel needle, or a number 7 needle.

Directions: Make a three-cornered cut in a piece four or five inches square. For the first darn the pupils should

use thread. Cut the cloth on the straight of the goods to get the ravelings. Use the crewel needle, if using ravelings. The stitches making the edges meet are not removed. Supply the warp and woof threads. In crossing the cut edges



Figure 88.

Making edges of three-cornered tear meet.



Figure 89.

Fanned three-cornered darn.



Figure 90.

Following warp and woof in the three-cornered darn.

go over one and under the other alternate times. The corner may be fanned, or the warp and woof threads followed. To hold down any ends of the cut threads, finish the darn with two rows of running stitches, following the cut or tear. Make all the stitches very short.

13—Application of Three-Cornered Darn.

(Two or More Lessons.)

Materials: Garment with three-cornered tear, ravelings to match, number 7 crewel needle.

Directions: Darn as for the three-cornered darn in Number 12.

SECOND DIVISION. OTHER YEAR

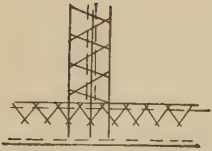
1—Stitches. (Six Lessons.)

Materials: The same materials are used as in Number 1, Second Division, One Year.

Directions: Follow the directions given in Number 1, Second Division, One Year.

2—Flannel Seam and Hem. (Three Lessons.)

Materials: Two pieces of white flannel each eight inches by two and three fourths inches, numbers 7 and 8 needles, number 70 thread, sewing silk.



Figures 91. The flannel seam and hem.

Directions: Place the two pieces together so that all edges are even. Baste the two pieces together, the long way, one fourth inch from edge. Sew seam with silk, three sixteenths inch from the edge, using the running stitch with a backstitch for every needleful. Baste the seam open, and catstitch. See cut for Flannel Seam. Across one end of this practice piece turn toward the wrong side a one and one eighth inch hem. Baste near the folded edge; then baste hem near its upper edge. Catstitch hem.



Figure 92. Showing wrong side of flannel placket.

3—Flannel Placket. (One Lesson.)

Materials: One piece of flannel eight inches by five inches, number 7 and 8 needles, number 70 thread, and sewing silk.

Directions: Find the middle of either end, and cut three and one half inches into the material, following the thread. Hold the piece of flannel so that the right side is toward you and the opening at the top. On the right-hand edge of opening make a seven eighths inch flannel hem. On the left-hand edge make a flannel hem three eighths inch wide at the top and tapering to almost nothing at the bottom. Catstitch at the bottom of placket to strengthen it and to keep the right edge over the left.

4—Outing Flannel Petticoat. (Fourteen Lessons.)

Materials: Outing flannel, twice the desired length of petticoat plus one third yard, one piece of muslin, the waist measure plus two inches, by two and one half inches, number 7 needle, number 70 thread, number 7 crewel needle and silkateen.

Directions: Cut skirt by a two or a four-gore skirt pattern, allowing three inches for hem and from two to three inches for shrinkage. Make seams and hem as directed in Number 2 of this year's work. Cut a nine-inch placket in middle of back gore. Make the placket as directed in Number 3 of this year's work. If a sewing machine is obtainable, the seams and band may be stitched on the machine, but must be done under the teacher's supervision. Use the silkateen for the catstitching. Find center front of the skirt and the band. Pin these two points together, lay the extra fullness in plaits at the back, and pin at the seams, making the opposite ones equi-distant from the center front. Baste the skirt together. This seam faces the wrong side of the petticoat. Sew the skirt to the band, using the backstitch and making the seam one fourth inch wide. Remove the basting thread. With the wrong side of the band toward you, turn the other edge of the band down one fourth inch. Fold the band toward the wrong side, just to cover the backstitching, pin in place, turn in the ends of the band, at least one fourth inch, and baste in place. Overhand the ends of the band and hem the lower edge of the band in place. See Number 6, for button and buttonholes.

5—Buttonhole Practice. (Two Lessons.)

Materials: The same as in Number 7, Second Division, One Year.

Directions: The same as in Number 7, Second Division, One Year.

**6—Making Buttonholes in the Band and Sewing Button
on the Band of the Outing Flannel Petticoat.
(One to Three Lessons.)**

Materials: Outing flannel petticoat, number 7 needle, number 50 thread, one pearl or vegetable ivory button.

Directions: Cut one buttonhole in the right end of the band a little below the middle. Work as directed above. Make buttonholes in the band to correspond with the buttons on the underwaist with which the petticoat will be worn. Bar these buttonholes at both ends. Sew on the button one half inch from the other end and slightly below the center of the band. See last part of Number 8, Second Division, One Year.

7—Flannel Patch. (Two Lessons.)

Materials: Two pieces of flannel, one six inches square, one four inches square, number 7 needle, number 70 thread, and sewing silk.

Directions: Cut a hole three inches square in center of large square to represent the worn portion. Place evenly over the hole, having the wrong sides of both pieces toward you. Baste near the edge of the patch, and near the edge of the hole. Catstitch patch in place and around the edge of hole.

8—Application of Flannel Patch. (Two Lessons.)

Materials: A flannel garment, a piece to match for the patch, sewing silk to match, number 7 needle, number 70 thread, sewing silk.

Directions: Cut away the worn portions making hole rectangular, if possible. Cut patch one inch larger each way than the hole. Proceed as in Number 7.

9—Three-Cornered Darn. (Three Lessons.)

Materials: Same as in Number 12, Second Division, One Year.

Directions: Same as in Number 12, Second Division, One Year.

10—Application of Three-Cornered Darn. (Two Lessons.)

Materials: Same as in Number 13, Second Division, One Year.

Directions: Same as in Number 13, Second Division, One Year.

11—Double Hemstitch Towel. (Six Lessons.)

Materials: Same as in Number 11, Second Division, One Year. Or use one and one half, or one and three fourths yards of material, and make a dresser scarf.

Directions: Same as in Number 11, Second Division, One Year. Hemstitch along the other edge of the space where threads have been drawn. Take the same threads to a stitch as were taken in opposite stitch of the single hemstitching.

12—Sewed Seam. (One Lesson.)

Materials: Two pieces of gingham, each eight inches by three inches, number 7 needles, number 70 thread.

Directions: Baste these two pieces together, one fourth inch from edge. Use the running stitch with a backstitch for each needleful in sewing them together. Remove the basting thread, trim the edges, if raveled, and overcast the two edges together.

13—Gingham Holder. (Three Lessons.)

Materials: One piece of gingham, calico or percale, twelve and one half inches by six and one half inches, four thicknesses of sheet wadding five and seven eighths inches square, number 7 needle, number 70 thread, silkateen.

Directions: Turn in edges of piece of gingham one fourth inch. Fold double, crosswise, crease and insert wadding. Baste, keeping corners and edges even. Overhand edges. Make two rows of running stitches, at right

angles to one another at the center, to hold the wadding in place. Finish with a loop at one corner, as directed in Number 3, Second Division, One Year, page 252.

14—Gingham Work Apron. (Sixteen Lessons.)

Materials: Apron gingham, twice the desired length plus one half yard, number 7 needle, number 70 thread.



Figure 93. Diagram showing how to cut out apron.

Directions: Remove selvages, cut off a three-inch strip the entire length of piece of goods. Cut from the three-inch strip the ties, each twenty-seven inches long. The band is the waist measure less two inches by two and one half inches, and is cut from the remaining portion of the three-inch strip. Cut the large piece crosswise into equal parts. Cut one of these pieces, lengthwise, into halves. The large piece is the front, and the two narrow pieces are the sidepieces of the apron. On each edge of the ties and one edge of each of the sidepieces of the apron make a one eighth inch hem. Make sewed seams in apron, a three-inch hem at the bottom of the apron, and a one-inch hem at one end of each tie. Gather the apron across the top and gather each tie at the end not hemmed. Sew apron and ties to the band. See Sewing Apron, Number 8, Second Division, One Year, page 257.

THIRD DIVISION. ONE YEAR

1—Laundry Bag. (Six Lessons.)

Materials: One and one half yards of white linen crash toweling, three yards of three eighths inch tape, number 7 needle, number 70 thread.

Directions: Make a two-inch hem at each end of the piece of toweling. In the hem make a row of backstitches one half inch from the hemmed edge, thus forming a casing

for the tape. Fold double, crosswise. With edges on each side even and the hems even, baste together the edges on each side, beginning just below hem. Overhand edges together on each side. Fasten thread by sewing over the end of it. Remove the basting threads and turn right side out, push out corners, and smooth out overhand seams. Cut tape in two. Draw it into casing, starting one piece at each side and bring each all the way around. Sew up the two ends of each tape, making a felled seam. See Number 4, of this year's work.

2—Overhand Patch. (Two Lessons.)

Materials: Two pieces of one eighth inch checked gingham, one six inches by six inches, one four inches by four inches, number 7 needle and number 70 thread.

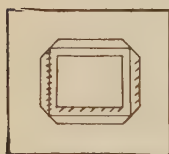


Figure 94. Overhand patch showing details of the work.

Directions: Match stripes and warp and cut away the supposedly worn portion the same as in Number 9, Second Division, One Year. Cut diagonally through two checks at each corner of the hole. Turn the edges on each side of the hole down two checks. Lay the piece thus prepared on the desk, wrong side up. Place the patch evenly over the hole matching stripes and warp. Turn the edges down two checks on each side of patch. (When turning an edge always turn it toward yourself.) Then place the patch in the space it is to fill, matching stripes and warp. Baste together the two edges that touch, the wrong sides out, and overhand these two edges together. Then remove the basting thread, baste the two adjacent edges, overhand, and so continue around the patch. Press the overhand seam as smooth as possible and overcast all the raw edges.

3—Application of the Overhand Patch. (Three Lessons.)

Materials: A garment in need of mending, a piece of the same material, number 7 needle, and number 70 thread, needle and thread, or silk suitable to use with material in garment.

Directions: Remove worn portion, making a square or rectangular hole; fit the patch to it, matching the design and warp; and cut the patch one half inch larger than the hole on each of four edges. Proceed as in Number 2 of this year's work.

4—Felled Seam. (One Lesson.)

Materials: Two pieces of outing flannel, eight inches by three inches, number 7 needle and number 70 thread.

Directions: Place one of the pieces on the other, so that the ends are even and the one long edge of the under piece extends three sixteenths of an inch beyond the edge of the upper piece. Baste one half inch from the edge farthest out. Stitch just outside of the basting. Remove the basting thread. Turn in the wider edge one fourth inch; then turn this part of the seam flat over the narrow edge of seam and baste the turned-in edge to the material. Stitch very close to the turned-in edge.

5—Outing Flannel Nightgown. (Ten Lessons.)

Materials: Three times the required length plus one yard of outing flannel, number 7 needle, number 70 thread and a sack nightgown pattern.

Directions: Cut out all parts, allowing for the growth of the individual and shrinkage of the material. Make felled seam on the shoulder, under the arm, and in the sleeve, having the back come over the front. Hem fronts the desired length for opening. Stitch the two fronts together below opening. Hem the lower edge of sleeve and

gown. Gather the sleeves at the top, and baste them into the armhole. If the sleeves are in correctly, stitch them, making a half-inch seam. Remove the basting thread and overcast the two edges together. Baste this half-inch seam to the adjoining parts of the gown, stitch again, one fourth inch from the overcast edge. Cut one piece as for a lay-down collar; sew it to the gown around the neck, with the seam toward the right side. Remove the basting thread, turn collar toward the right side of gown, and baste around the neck. Turn in the edge of the collar and baste it to the gown. Stitch.

6—Buttonholes. Review. (One Lesson.)

Materials: The materials are the same as given in Number 7, Second Division, One Year.

Directions: The directions for making the buttonholes are the same as given in Number 7, Second Division, One Year.

7—Buttonholes and Buttons. (Three Lessons.)

Materials: Nightgown. See Number 5, of this year's work, number 7 needle, number 50 thread, and six half-inch pearl buttons.

Directions: Work six buttonholes as directed in Number 7, Second Division, One Year, in the right hand portion of the front of the nightgown. Sew buttons as directed in Number 6, Second Division, Other Year, on the left hand portion of the front of the gown to correspond with the buttonholes. Page 262.

8—Stockinet Darning. (Six Lessons.)

Materials: The materials are the same as given in Number 5, Second Division, One Year.

Directions: The directions are the same as given in Number 5, Second Division, One Year, page 253.

9—Sleevelets. (Three Lessons.)

Materials: One half yard of thirty-six inch wide muslin, or India linen, needle and thread to correspond with material. A "leg o' mutton" sleeve pattern with but one seam.

Directions: Cut sleevelets sufficiently large to go on over dress sleeves and to reach from the wrist past the elbow, allowing for a three fourths inch hem at the lower edge, and a three eighths inch hem at the upper edge. Make a French seam in sewing the sleeve, and hem the upper and lower edges.

10—Hemming Curved Edge. (One Lesson.)

Materials: Two pieces of fine muslin or India linen, seven inches by seven inches, number 7 or 8 needle, number 70 or 80 thread.

Directions: Choosing any one corner as the center, with seven inches as a radius, cut an arc of a circle. Turn, and baste a hem less than one eighth inch wide. Hem.

11—Cap. (Four Lessons.)

Materials: One half yard of fine muslin or India linen, number 7 needle, number 70 thread, number 9 needle, and number 90 thread, and one piece of elastic to fit head.

Directions: Cut a circle eighteen inches in diameter from the muslin. To cut a true bias fold the material so that the warp threads fall on the woof threads, then cut on the fold. Cut one and one half yards of bias strips seven eighths of an inch wide. Make a one eighth inch hem around the cap. Turn each edge of the bias strip one eighth inch under and baste it at each edge two inches from the edge, on the wrong side of the cap. Cut off the extra amount of the bias strip, allow enough with which to hem each end and stitch bias strip at each edge to the cap.

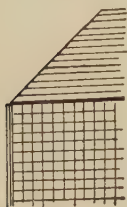


Figure 95.
Folding the
material for
a true bias.

12—Application of Patches and Darns. (Two to Six Lessons.)

Materials: See Number 5, Number 10 and Number 13, Second Division, One Year; Number 8, Second Division, Other Year; and Number 3, Third Division, One Year.

Directions: For directions see the same numbers as for the materials.

13—Tray Cloth or Doilie. (Four Lessons.)

Materials: One piece of medium fine linen of the desired size, number 7 needle, number 70 thread.

Directions: Draw six threads one and one half inches from each edge. See cut of Mitre Number 5, Third Division, Other Year. Baste hems and double hemstitch as in Number 11, Second Division, Other Year, page 264.

14—Buttonholes. (Four Lessons.)

Materials: Garments brought from home, needle and thread of suitable sizes, the thread to match the color of the material.

Directions: For directions see Number 7, Second Division, One Year, page 255.

THIRD DIVISION. OTHER YEAR**1—French and Felled Seams. (Two Lessons.)**

Materials: Three pieces of muslin or gingham, each eight inches by three inches, numbers 7 and 8 needles, numbers 70 and 80 thread.

Directions: For the French seam, baste the long edges of two pieces one fourth inch from the edge. Sew one eighth inch from the edge. Remove the basting thread, and trim the edges slightly, to remove all frayed edges. Turn the other side of material toward you and baste the seam just made within the seam. Stitch this seam one eighth inch from edge. For the felled seam, see directions for Number 4, Third Division, One Year, page 267. Make it one eighth of an inch wide.

2—Long Sleeved Aprons. (Six Lessons.)

Materials: Three times the length from shoulder to bottom of skirt plus one yard of gingham, or print. If percale is used, add one half yard to three times the required length, number 7 needle, and number 70 thread and a long sleeved apron pattern with straight lines.

Directions: Cut out apron, allowing for shrinkage of cloth and growth of child. Make French seams, remembering that the first time they are basted toward the right side of the material. Sew in the sleeves; finish the neck and bottom the same as the nightgown, when the two edges in the back have been hemmed. Make two pockets, each seven inches by six inches. Sew one pocket on each side of the front of the apron.

3—Work Buttonholes in Apron. (Four Lessons.)

Materials: Apron, number 7 needles, number 50 thread, eight one half inch pearl buttons.

Directions: See Number 7, Second Division, One Year, and Number 7, Third Division, One Year.

4—Marguerite. (Seven Lessons.)

Materials: One yard of muslin, two yards of lace with beading, one piece of linen tape three eighths inch wide, number 7 and 8 needles, number 70 and 90 thread, and corset cover pattern.

Directions: In cutting out the material remember the marguerite slips on over the head, and that it is best not to cut it very low around the neck. Make a felled seam on the shoulder, a French seam under the arm, and a one eighth inch hem at the bottom, around the neck, and at the armholes. Make a felled seam when joining the lace. Sew the lace around the neck and armholes with the overhand stitch. Full the lace slightly under the arm in front of the

under-arm seam. Have the right sides of the marguerite and of the lace face each other, with the lace on the thumb side, the side nearest you. Prepare a bias fold as directed in Number 9, Third Division, One Year, to fit across the back at the waistline. Baste in place and stitch. Draw a piece of tape long enough to tie around the waist through the casing formed by the bias fold. Draw the tape into the beading and tie.

5—French Hem and Mitre. (One Lesson.)

Materials: A seven-inch square of medium fine linen, numbers 7 and 8 needles, numbers 70 and 80 thread, and a four-inch square of stiff paper.



Figure 96.
Mitered hem.

Directions: From one corner of the paper measure five eighths of an inch on each side, connect these two points with a straight line, and cut along this line. Cut one corner of square by this pattern. Turn each of the adjoining edges one eighth of an inch, then a one fourth inch hem. Baste near the turned-in edge. Fold the hem back on one side and overhand the two folded edges. In a similar manner hem the other side adjacent to the mitred corner. Hem the mitre at the corner.

6—Application of French Hem. (Six Lessons.)

Materials: Two napkins brought from home, numbers 7 and 8 needles, and numbers 70 and 80 thread.

Directions: Napkins have selvages on two edges. Cut the other two edges straight by the thread. Make a one fourth inch French hem at each of these two edges.

7—Gingham Underskirt. (Eight Lessons.)

Materials: Twice the skirt length plus three fourths of a yard of striped gingham, number 7 needle, numbers 70

and 50 thread, one medium-sized pearl button, and a plain five-gore skirt pattern.

Directions: Cut the gores two inches shorter than the desired length, three pieces across the material, each five and a half inches deep, for the ruffle, one piece, the waist measure plus two inches by two and a half inches for the band, one piece twenty inches by two and a half inches for the extension placket, and enough bias strips to face edge of ruffle and to finish seam at upper edge of ruffle. Make French seams in skirt, leave a nine and a half inch placket at the top of the back seam, join with sewed seams the three pieces of the ruffle and the bias strips. To face one edge of the ruffle with the bias strip, put the right side of bias to the wrong side of the ruffle, having their edges even, baste and stitch three sixteenths of an inch from edge. Remove the basting thread, turn the bias strip toward the right side of ruffle, baste at the edge, and turn under the upper edge of the bias strip. Baste and sew at the upper edge. Divide the ruffle into quarters and notch it; then gather it at its upper edge. Divide the lower edge of the skirt into quarters, starting at center back. Pin ruffle and skirt together at notches, the wrong sides together. Baste the two, arranging the gathers evenly. Then baste the bias strip to the ruffle side of the seam just basted, having the right side of the bias strip face the ruffle. Stitch, and remove the basting threads. Turn the bias over the seam and baste at its lower edge. Finish as at lower edge of the ruffle. To make the extension placket, place the piece cut for it on the wrong side of the skirt; starting at the upper end of the right-hand portion of the placket opening, baste in place; taking particular care at the lower end of the placket, sew; remove the basting thread; turn the other edge one fourth of an inch and bring it over the seam to just cover the stitches.

Baste, sew, and remove basting thread. To sew the skirt to the band, first notch the middle front of the skirt. Then notch the band one and one fourth inches to one side of the middle. Place the band on the wrong side of the skirt. Pin the notches together, with the longer portion toward the left side of the skirt. At the back pin the skirt to the band, the left portion of placket extended, and the right portion turned back. Dispose of the extra fullness by gathering or laying it in plaits, whichever way is the most desirable. Remember that the skirt must hang straight from the band. Baste, and stitch the skirt to the band. Continue as directed in Number 4, Second Division, Other Year. Work a buttonhole in the right-hand end of the band and sew the button on the band at the left-hand end. Have the ends of the band overlap the width of the extension placket one inch.

8—Muslin Nightgown. (Eight Lessons.)

Materials: Twice the length from the shoulder, at the neck, to the floor, plus one half yard of thirty-six inch muslin, two yards of lace with beading, one piece of one fourth inch linen tape. Numbers 7 and 8 needles, numbers 70 and 80 thread, and a nightgown pattern.

Directions: The pattern used in Number 5, Third Division, One Year, could be used, or a nightgown pattern with butterfly sleeves. One third yard less material is required for the pattern with butterfly sleeves. If the pattern mentioned first is used, allow two inches at the center for fullness. Add three inches for hem to the required length. If it is necessary to piece the front on each side at the bottom, make sewed seams. (Make felled seams on the shoulder and French seams under the arm and in the sleeve.) Make a three-inch hem at the bottom, and a one eighth inch hem

around the neck and at the lower edge of sleeves which are of elbow length. Gather the sleeves at the top. Baste sleeves into armholes, and fit them. If the sleeves fit properly, sew them, making a three eighths inch seam. Overcast the raw edges, putting a stitch through each of the gathers. Sew on the lace as directed in Number 4 of this year's work. There are, of course, no separate sleeves, if the butterfly pattern is used.

9—Sofa Cushion Cover. (Four Lessons.)

Materials: Two pieces of linen or cretone twenty-two inches by eighteen inches, two pieces each twenty-two inches by two and a half inches, thread to match, number 7 needle, number 70 thread, and four clasps.

Directions: Face, with the narrow strips, one edge of each of the large pieces. Place the two large pieces with the faced edges together and the right sides so as to face each other. Baste and sew one fourth inch from the edge at the ends and the side not faced. Remove basting threads, trim slightly the two corners just stitched, turn, and push out the corners. Baste near the edge of the three stitched sides; baste a second time two and one eighth inches from the edge; and stitch two inches from the edge. Sew the clasps near the hemmed edges of the facings at the opening. The top may be ornamented with a stenciled design, crocheted motifs, or embroidery, if cover is of plain material.

HOME PROJECTS

To alter patterns: A plain gored skirt pattern, if it is too long, may be shortened by laying a plait across each gore at half the distance down from the top. Have the edges even at the front or the part of the pattern that will come on the straight of the goods. If the pattern is too large around the hips, lay equal sized plaits lengthwise

through the middle of each gore. Sleeve patterns are reduced in a similar manner. If a plain waist pattern is "long waisted," determine whether the extra length is above or below the bust line or both. Shorten the pattern where it is too long. If a pattern is too wide across the shoulder, make a lengthwise plait through the middle of that portion, and, if too wide under the arm, do the same there. If a pattern is too narrow or too short, determine where to enlarge. See above how to reduce. Cut the pattern and insert a strip of paper of the required width.

Wash goods of linen or cotton and woolen goods should be shrunk before making up. A tablespoonful of salt added to each quart of lukewarm water used when shrinking the wash goods sets the color. When pressing the material keep the edges straight.

If the material is figured, checked or plaid, decide which is up and which is down and cut all parts the same way.

1—A Pair of Drawers

Materials: Muslin, twice the length from the waistline to the bent knee plus six inches, two and a half yards of five-inch or six-inch embroidery, thread and needles of suitable sizes, and a good pattern.

Directions: Tear off a strip of the material at one end to straighten it, and pull the goods straight, if it seems uneven. Turn up the lower edge of the pattern five or six inches the width of the embroidery. Place pattern of goods with its lower edge on the straight end of the cloth and cut one part. To cut the corresponding part, use the piece just cut, placing the woof threads in it on the woof threads of the larger piece of cloth. Cut two pieces, one for the placket and one for the band the same as in Number 7, Third Division, Other Year. When sewing the (short)

seam in each of the two large portions, make a felled seam. Join with a felled seam the two portions, which should be pairs, having the two short seams meet.

If the placket is desired at the back, leave the length of it when sewing this seam. Or, the placket may be made at either side. Make the placket and sew skirt to the band as in Number 7, Third Division, Other Year. Turn up the lower edge five eighths of an inch toward the wrong side. Baste near folded edge. Stitch, making a three sixteenths inch tuck. Cut the embroidery into two equal pieces, trim upper edge, if it is uneven. Match the pattern and join with a sewed seam. For convenience, later, divide each flounce into a fourth, starting at the seam, marking the upper edges with a notch or pin. Gather each flounce. Divide the lower edges of drawers into fourths, starting at the seam. Pin a flounce to the raw edge of each portion, placing seams together, also wrong sides, and notches. Baste, arranging gathers uniformly, stitch each three sixteenths of an inch from edge and remove basting threads. Turn the seam up and baste the tuck down over it and baste the tuck in place. Stitch in the very edge of the tuck. Finish the band with a button and buttonhole.

2—A Wash Dress

Materials: Select material that will launder nicely and that is suitable to the wear you wish to give the dress and of becoming color, the correct size of a simple pattern, of suitable style for a wash dress, thread to match the material, and buttons or No. 2 hooks and eyes.

Directions: Styles change so frequently that but few general directions can be given. Study and follow directions with the pattern. Fit pattern, alter if necessary, and lay all parts of it on the goods before beginning to cut. It

is sometimes necessary to rearrange the parts of the pattern in order to cut goods economically. Make French or sewed seams in skirt depending on the material, an extension placket as in Number 7, Third Division, Other Year. Baste the skirt to the band. See that the seams in the skirt hang straight, that it does not pull anywhere and that it is even at the bottom. Finish the band neatly at the ends, being careful to make the two edges of the placket the same length. When turning the hem, dispose of the fullness of its upper edge by laying a small plait in the part of each gore that is on a bias. If one plait disposes of fullness but makes the skirt longer at that place, make two a small distance apart. The lower edge of a plain gored skirt is uniformly curved, if the hem is turned correctly and no unusual alterations have been made to make it fit. Finish the waist neatly at the neck, the bottom, the lower edge of the sleeves, and where it fastens. When putting in the fasteners, whether it be buttons and buttonholes, or hooks and eyes, make sure that they will fulfill their purpose of keeping the garment properly adjusted. If the dress require a belt or girdle, sew fasteners in it.

REFERENCES FOR SEWING

Books: How We Are Clothed, Chamberlain; Clothing and Other Textiles, Carpenter; Great American Industries, Manufacturies, Rocheleau; Shelter and Clothing, Kinne and Cooley; Textiles, Dooley; Textiles, Woolman and McGowan; Sewing Tablet Series, Blair.

Farmers' Bulletins, Department of Agriculture, Washington, D. C.: Flax for Seed and Fiber, No. 27; Silkworm Culture, No. 165; Angora Goat, No. 137; Sea Island Cotton, No. 302.

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CHAPTER XIX

THE HOT LUNCH

So many ridiculous questions have been asked and statements made regarding the hot lunches served in schools that it is well to ask, What is the "hot lunch idea"? In the first place it is not serving lunches between meals during the forenoon and afternoon sessions of school, as some have imagined. Neither is it giving a course in domestic science. The hot lunch idea is a simple question of practical hygiene. Farmers are careful of their feed for cows, and have heaters to warm the water for them to drink in cold weather, moved by no other consideration than financial profit. They know that the cows produce more butter fat under these conditions. Even heaters for cooking the hog feed in winter are employed as a matter of business economy. And yet some of these same thrifty farmers will let their children walk two or three miles through snow and cold to school, eat a frozen lunch at noon, unless by good fortune it has thawed out, and trudge home again at night in time to do the chores before supper.

The primary purpose of serving something hot at noon to those who carry lunches is, then, simply one of efficiency. Like the food for the cattle and hogs, the hot lunch has been found profitable, profitable from the standpoint of educational efficiency as well as physical betterment. The boy or girl who eats only a cold lunch day after day is not physically or mentally capable of doing the work that may be expected of them.

Other advantages of the hot lunch plan are that the older students have an opportunity to do some practical plain cooking occasionally, without interfering with their

school work. The assuming of responsibility for preparing the hot dish to be served, the practice of serving, table etiquette, the brief study of food principles, are all very valuable training. It should not be thought for a moment that the whole meal is prepared at school. The children bring their lunches from home. One hot dish is prepared for all the students each day during the cold weather. Even if this were nothing but a hot drink of milk or cocoa, it would be well worth while, but it is entirely unnecessary to limit the dishes that can be served to a few of which the children will soon tire. The kinds of prepared food which one can carry in a lunch basket are limited. The hot dish gives variety and increases the nutritive value of the lunch.

The equipment for serving hot lunches need not be extensive. A cupboard with doors, made by the older boys of the school, provides a place for dishes, cooking utensils and supplies. The one shown in the picture is similar to several others that were made out of a dry goods box. Shelves were put in and curtains hung over the front. Doors would be more sanitary than curtains, however. Each child is asked to bring a cup, saucer, fork and spoon. These remain during the hot lunch season, from November to April, when the weather is unfit to eat outside. It is also desirable, but not necessary, that each bring two napkins—one to be used as a table cloth on the desk. Paper napkins may be purchased out of a general fund, if desirable. Others should be washed as often as necessary or exchanged for clean ones at home. Coffee cans or fruit jars can be obtained in which to keep the staple supplies, as flour, sugar, salt, oatmeal, cornmeal, rice, etc.

The question of supplies is often raised. Where do they get the materials used by the students? Sometimes a levy

of ten cents each is made for the purchase of groceries. We have found a more satisfactory way in which the students bring practically all the supplies from home. This is not difficult, as they can furnish large or small quantities—a quart of milk or one cupful, one potato or half a dozen. If a soup or some dish requiring milk is made, it is well to let one family furnish all that is needed for that day. It will not bring anything more until its turn comes again. This matter can easily be regulated by the teacher, and a record kept. If baked potatoes were the dish to be served, each could pick out his own potato and bring it to school the day it is to be used. A few cents each will provide the general supplies referred to above, or even they may be brought from the homes. There will be no difficulty in getting all the supplies, if the teacher is tactful and has the co-operation of the mothers. There may be home conditions in the community where it would be wise to have the children bring only vegetables. Other families can furnish the milk, butter, eggs, meal, etc. Plans should be made and the dish selected two or three days before it is to be served. As far as possible let the students make the selections. Two or three can be suggested by the teacher and one chosen. Change enough should be made to vary the nutrients from day to day.

Housekeepers, or monitors, should be selected from the older boys and girls to serve for one week. Two are enough at once. In case the school is large, one or two more may be selected to help serve and to wash the dishes. These persons are responsible, but the teacher should assist and encourage them. The necessary preparations are made in the morning before school and at recess. One of the housekeepers can quietly get up and start the stove at whatever time the dish needs to be put on to have it

ready by noon. The rest of the students will soon pay no more attention to this than to any other schoolroom activity to which they are accustomed. Little, if any, time needs to be taken to watch the heating or cooking process.

Serving the hot dish is the most interesting part of the preparation. The children are always happy over it. As soon as dismissal is over, the pupils should take their seats for lunch. The monitors should then pass the napkins, the spoons or forks, and the dinner pails from home. The hot dish made in school is then served to each, and eaten with the lunch from the pails. The teacher should always sit and eat with the pupils. Encourage pleasant conversation. Sometimes she could have them discuss what they have for lunch and its uses. Nutrition, balanced diets, sanitation, good health, games for the playground, are suggestive topics for conversation. Table manners such as found in the best homes should prevail. At least twenty minutes should be used in eating the noon day lunch, and, if persons leave before that time, they should ask to be excused, as at any other table. Lunch plans for the next day are made. The lessons to be learned from these sources are well worth the little extra work required to conduct the hot lunches.

Dishwashing follows the lunch, and is done by the housekeepers, changing each week. The water should be heated for this while the lunch is being eaten. The monitors remove the dishes, but each student is responsible for the crumbs near his desk. The dishes are washed, rinsed, wiped and put in their proper places in the cupboard. See that the mixing dishes are kept very clean. As soon as students get used to the routine of preparing, serving, and dishwashing, very little time will be consumed in these tasks. The boys should take their turns as well as

the girls. The experience will be valuable to them also.

The equipment here given is that which was furnished each of our Associated Schools. The two-burner kerosene stoves cost \$5.95 each. The ovens, about \$2.00 each, and the list of utensils about \$1.50. Even this somewhat elaborate equipment cost under ten dollars and will last for years. The stoves and equipment are used at farmers' club meetings, institutes, and other social gatherings at the school. Any live school can raise enough money to purchase the outfit if it is not furnished by the district.

THE EQUIPMENT

1 double burner blue flame kerosene stove.	1 cover to fit.
1 single burner oven.	1 wooden mixing spoon, (long handle).
1 12-quart dish pan.	1 ladle.
1 draining pan.	1 table spoon (metal).
1 set of six muffin tins.	1 teaspoon (metal).
1 large three-pint mixing bowl.	1 kitchen knife.
1 small bowl.	1 fork.
1 cup. (St. Dennis.)	1 Dover egg beater.
1 dinner plate.	1 strainer.
2 pie tins (1 large, 1 small.)	1 paring knife.
2 asbestos mats.	1 graduated measuring cup.
1 eight-quart granite kettle.	1 eight-inch omelet pan or skillet.

GENERAL DIRECTIONS

Use level measures for both dry and liquid materials. If you wish to measure a spoonful of flour, dip a spoon into the flour and level off with the back of a case knife. Starting at the handle, push the surplus off as the knife moves toward the end of the spoon. Fill a cup or large measure by lifting the material into it with a spoon, or dish, then level off with a case knife. Filling a measure by dipping it into the dry material causes the material to pack. Always look up the table of measures when using a recipe from a new book. Abbreviations, measures and weights that will be used in carrying out the hot lunch idea are given.

ABBREVIATIONS

t = teaspoonful; T = tablespoonful; c = cupful; pt. = pint;
qt. = quart; lb. = pound.

MEASURES

4 teaspoonfuls make 1 tablespoonful; 16 tablespoonfuls makes 1 cupful; 12 tablespoonfuls of dry materials, as rice and rolled oats, make 1 cupful; 2 cupfuls make one pint; 2 pints make 1 quart; 4 quarts make 1 gallon.

SAUCES AND THICKENING FOR CREAM SOUPS

Thin Sauce

1 T of fat
1 T of flour
1 c of milk (usually)
 $\frac{1}{4}$ t of salt
A dash of white pepper

Medium Sauce

2 T of fat
2 T of flour
1 c of milk or other liquid
 $\frac{1}{4}$ t of salt
A dash of white pepper

METHODS OF MAKING SAUCES OR THICKENING LIQUIDS

1. Use this method when all ingredients are cold and time must be considered. Place the flour and fat in a pan over the fire. Stir with a wooden spoon as the butter melts, and do not allow it to burn. A wooden spoon is acid proof, noiseless and does not become hot. When frothy add the liquid. Stir constantly and rapidly while it cooks. It is cooked when it does not taste of raw flour. Season.

2. Use this method when liquid to be thickened is warm. Mix the flour and fat in a cup or bowl. With the knife place the mixture of flour and fat on the end of a wooden spoon and stir it into the liquid. It is cooked when it does not taste of raw flour. Season.

3. Use this method when a small amount of fat is used. To the flour add enough of the cold liquid to make a smooth batter. Pour the batter into the boiling liquid. It is cooked when it does not taste of raw flour. Add fat and seasoning.

Sauces and cream soups must be smooth and not lumpy. Should either show signs of lumping, remove from the fire

immediately and beat the mixture with the Dover beater until smooth. Return to the fire, stirring constantly and cook until done. The thin sauce is suitable for creamed potatoes, macaroni, toast and rice. The medium sauce is used with vegetables less starchy than potatoes, and with fish. A cupful of sauce is needed for a pint of diced vegetables when preparing a creamed dish. The medium sauce is also used in making creamed soups. An equal amount of the liquid in which the vegetable is cooked is added to the sauce. In some cases the vegetables are pressed through a sieve and added. Sauces can be kept warm, if covered tight and placed in a pan of hot water.

CARBOHYDRATES

Vegetables

Wash vegetables, scrape or pare and cut into half-inch cubes. Place in cold water to prevent discoloration. Put to cook in boiling water, usually just enough to cover. Parboil strong flavored vegetables and add more boiling water. When about half done, add a tablespoonful of salt to a quart of water. Cook vegetables until tender. A time-table is suggestive. The variety, quality, and age of the vegetables make the difference in the length of the time it takes to cook them. As soon as they are cooked, drain off the liquid and save it, if it is to be used. Cover with several thicknesses of cloth that the steam may escape, but the heat be retained. If a cover is placed over the kettle, the steam remains in it, and, as it cools, it makes vegetables soggy. Use the liquid in which vegetables are cooked, when making cream soup or creaming vegetables.

In the process of cooking, the water dissolves the nutrients, and flavors are withdrawn from vegetables. Before combining the liquid in which vegetables have been cooked

with milk or white sauce, add soda, the amount depending on the acidity of the liquid. Otherwise the milk will curdle.

Cereals

Cereals, like vegetables, are put to cook in boiling water, as they need to absorb much water in the process of cooking, because they contain but a small amount. Cook cereals in salted water directly over the fire for the first ten minutes stirring occasionally, so that the mixture does not stick to the bottom of the kettle or upper part of the double boiler. Place in lower part of double boiler in which is boiling water, and continue cooking for a long time. Long, slow cooking is necessary, because cereals contain a large amount of cellulose or woody fibre. This must be softened. Use from one to one and a half tablespoonfuls of salt to one quart of water.

PROTEIN

Eggs are readily digested, if cooked slowly, so that the white is tender. If intense heat is applied, the egg white coagulates quickly and is hard and difficult to digest. Substances similar to egg white are found in lean meat, milk and cheese in larger quantities, but in vegetables and cereals in smaller quantities. If beef broth or meat stock is to be prepared, cut the meat into inch cubes, put it on in cold water and cook slowly. In this way it is possible to dissolve the nutrients and extract the flavors. If juices and flavors are to be retained in the meat, start cooking with greater heat, plunging meats into boiling water and later decreasing the heat. The heat of the boiling water coagulates the albumin near the surface, thus preventing, to some extent, the juices from escaping. This principle has been disputed by some authorities, but it is, nevertheless, generally accepted as being correct.

SUGGESTIVE DISHES FOR HOT LUNCHES

Fifty dishes that have been prepared and served in rural schools. Select from them.

Note: The time for each recipe is an estimate of the time required to cook it with reasonably good heat, not to prepare it. Salt is added as directed in cooking cereals and vegetables when boiling either. Sauces are seasoned except when otherwise directed, as in creamed chipped beef. If recipes requiring a long time are chosen, there should be some place to heat them on the regular stove to save oil. A homemade fireless cooker should be used if possible as it will save both time and fuel. Where an oil stove only can be used, do not select the recipes that require more than a short time.

1—Baked Apples. Time: 1½ hours.

Directions: Bake one apple for each pupil. Wash and core. Place in a granite pan, put a teaspoonful of sugar in the center of each apple and pour enough water into the dish to cover the bottom of it. Bake until tender. Apples are best if baked in a very slow oven for one and one half hours.

2—Cream of Tomato Soup. Time: 15 minutes.

Recipe—

¼ c strained tomato
½ c milk
2 t butter
3 t flour
⅛ t salt
A dash of white pepper

Directions: Thicken the milk with flour and butter and add seasoning. Heat tomato and add enough soda so that the milk does not curdle when small amounts

of each are combined. When ready to serve pour heated tomato into the thickened milk. Stir while pouring. This amount will serve one person.

3—Barley Soup. Time: 10 to 12 hours.

Recipe—

½ c pearl barley
3 c boiling water
1 t salt

Directions: Cook the barley ten to twelve hours according to directions for cooking cereals.

Add barley to reheated broth from Number 7 or other broth made for that purpose. This amount is enough for eight persons.

4—Rice Gruel. Time: 1½ hours.**Recipe—**

1 T of rice
 2½ c of boiling water
 1 c of milk
 ⅛ t of salt (scant)

Directions: When washed, cook the rice as directed for cereals. After the first ten minutes, cook covered in improvised

double boiler for one and one half hours. About fifteen or twenty minutes before the time to serve add the milk, and cover. Leave pan or kettle containing gruel in pan of boiling water. Add salt and serve hot. This amount will serve one and one half persons.

5—Creamed Macaroni with Cheese. Time: 2 hours.**Recipe—**

½ package macaroni
 1 c milk
 1 T butter
 1 T flour
 ¼ t salt
 A dash of white pepper
 ½ c grated cheese

Directions: Break the macaroni into one and one half inch lengths. Cook same as rice, in two and one half quarts of boiling water to which two and one half tablespoonfuls of salt have been

added. Cook for two hours. Drain well, and cover with cold water and drain again. Make white sauce with the flour, fat and milk. Season, add grated cheese and macaroni. Cover and place in pan of hot water to keep hot. This amount is enough for seven or eight persons.

6—Meat Loaf. Time: 25 minutes.**Recipe—**

2 lbs. of beef
 2 slices of salt pork or bacon
 ½ dozen crackers
 2 large or 3 small eggs
 ⅛ t pepper

Directions: Use the meat from Number 7. Chop it and the salt pork or bacon, add the crackers, crumbled fine, the salt and pep-

per, and mix well. Moisten with left-over soup stock or a little hot water and butter, and add well beaten eggs. Shape into a loaf in greased baking pan. Bake until the egg is cooked. This amount will serve fifteen to eighteen pupils.

7—Beef Broth. Time: 4 to 5 hours.**Recipe—**

- 4 lbs. raw meat and bone
- 4 qts. cold water
- 2 t salt
- 9 peppercorns
- 3 T each of diced onions,
carrots, parsnips, and
rutabagas
- 4 T bacon fat

Directions: Make broth the day before serving. Bone contains nourishment and flavor which improves the soup. A shin or shank of beef (often spoken of as a soup bone) containing equal amounts of lean meat and bone is

best. Saw bone, and cut meat into small pieces. Put bone, meat and cold water into a kettle with a tight fitting cover. The water ought to cover the meat and the bone one inch deep. Add one half of the salt, the peppercorns, and, if desired, one third that amount of whole allspice. Heat contents of kettle slowly and simmer four or more hours. In some hot bacon fat in a spider cook the diced vegetables until brown. Put browned vegetables in soup kettle, also the small amount of water with which the spider is rinsed. Add remainder of salt. Simmer half an hour. The browned vegetables are used to add flavor and color to the broth. Pour broth through a strainer into large bowl or pan. Place bone, meat, and vegetables in other utensils. After rinsing kettle, pour broth into it. Cover kettle with cloth to keep dust out and let broth cool. There will be about three quarts of stock or broth. The next day remove fat from the top and reheat. Serve each pupil with one half or three fourths cupful of broth. Cover meat with a clean cloth to keep the dust out and keep in a cool place until it is used.

8—Bean Soup. Time: 10 to 12 hours.

See Pea Soup Number 42. Use the same amounts and make in the same way.

9—Creamed Potatoes. Time: 45 minutes.**Recipe—**

4 medium potatoes
1 c milk
1 T fat
1 T flour
1¼ t salt
Pepper

Directions: Make a thin sauce of milk, fat, and flour and add a pint of boiled diced potatoes. See sauces and cooking vegetables. Enough to serve four persons.

10—Apple Tapioca Pudding. Time: 1½ hours.**Recipe—**

1 c tapioca
10 tart apples
1 c sugar
Juice of 1 lemon

Directions: Soak tapioca over night in six cupfuls of cold water. Pare, core and quarter the apples. Add the apples, sugar and lemon

juice to the tapioca when it has cooked for fifty minutes. Cook until apples are tender. Serve with cream. This amount will serve sixteen to eighteen pupils.

11—Stewed Tomato. Time: 15 minutes.**Recipe—**

1 qt. tomato
1½ c to 2 c of bread or
1 c soda crackers
2 T butter
¾ t salt
Pepper to taste

Directions: Heat tomato, add butter, salt, pepper and bread or crackers. Break slices of stale bread or crackers into half-inch pieces. Serve hot. This amount

will serve ten to twelve pupils.

12—Cream of Peas. Time: 30 minutes.**Recipe—**

1 pt. canned peas
1½ t salt
3 c boiling water
3 c of medium white sauce
Pepper to taste

Directions: An hour before they are wanted, open and empty at once a can of peas. Mash the peas. Add the boiling water and

salt. Make the white sauce according to directions in thickening sauces for soup. Combine mashed peas and sauce immediately before serving. This amount will serve ten to twelve pupils.

13—Creamed Peas. Time: 30 minutes.**Recipe—**

1 pt. canned peas
1 pt. medium sauce
 $\frac{1}{2}$ t salt
1-16 t pepper
 $1\frac{1}{2}$ t sugar

Directions: At least an hour before using the peas open and empty the can at once. While making the sauce according to directions for sauces, allow the

peas to heat. Add the salt, sugar, and pepper to peas. Pour the peas into white sauce. Mix and serve hot. This amount will serve eight persons.

14—Mashed Potatoes. Time: 45 minutes.**Recipe—**

6 medium sized potatoes
 $\frac{3}{4}$ c hot milk
2 T butter
 $\frac{1}{4}$ t salt
 $\frac{1}{4}$ t white pepper

Directions: Prepare and cook as directed for vegetables. Cut in halves only. Potatoes usually cook in thirty minutes. When tender, drain well, cover with

several thicknesses of cloth and let stand for a minute or two to allow some of the steam to escape. In the meantime put the milk on to heat. Mash smooth with a wooden potato masher. Add butter, salt, and pepper and enough of the hot milk to make light. Beat until white. This amount will serve eight to ten pupils.

15—Cocoa. Time: 10 minutes.**Recipe—**

$\frac{1}{2}$ c milk
 $\frac{1}{2}$ c water
1 t cocoa
 $1\frac{1}{2}$ t sugar

Directions: Pour milk to boiling water. Mix cocoa and sugar in a cup. When liquid is about to boil, add enough of it

to cocoa and sugar to make smooth. Pour this mixture into boiling liquid. Cook for five minutes. Acid proof utensils as enamel or granite ware which is not chipped, silver and wooden spoons must be used or color of cocoa is spoiled. This amount will serve one and one third persons.

16—Boiled Rice with Butter. Time: 2 to 3 hours.

Recipe—

1 c rice
1 T salt
4 c water

Directions: Clean, wash, and drop rice into boiling salted water. Cook for two or three

hours as directed for cereals. If steam escapes, more boiling water must be added, if rice tasted raw when cooked dry. Serve with butter, salt and pepper. This amount will serve eight pupils.

17—Egg Gruel. Time: 10 minutes.

Recipe—

1 egg
1 c milk
1-16 t salt

Directions: Beat the egg while milk is heating. When steaming hot, not boiling, pour slowly over

beaten egg. Continue beating while pouring. Serve at once. This amount will serve two pupils.

18—Baked Potato. Time: 1¼ hours.

Recipe—

1 medium sized potato
per pupil

Directions: Wash and put potatoes to bake on grate in hot oven an hour and fifteen minutes

before time to serve. Turn potatoes occasionally while baking. They are baked, if they feel soft when pressed between the hands. If not ready to serve at once, burst or prick with fork the skin of each potato, that the steam may escape. Otherwise they become soggy. Place in a clean towel to keep warm.

19—Vermicelli Soup. Time: 4 to 5 hours.

Recipe—

1 qt. meat stock
¼ c vermicelli
¼ t salt
1 c boiling water

Directions: Make required amount of meat stock, as directed in Number 6. Break vermicelli into inch lengths and cook for

one and one half hours in salty water. Drain. Cover with cold water, drain again, and place in broth. Serve hot.

20—Vegetable Soup. Time: 25 minutes.

Recipe—
 onions
 carrots
 parsnips
 rutabagas

Directions: Use vegetables in equal amounts or lessen or omit any not desired. Prepare and cook as directed for vegetables.

Allow $\frac{1}{4}$ cupful of diced vegetables to a person. To soup stock left from Number 18, add from one third to one half as much vegetable stock, the liquid in which the vegetables are cooked. Serve hot. $\frac{3}{4}$ cupful to a person.

21—Chop Suey. Time: 1 $\frac{1}{4}$ hours.

Recipe—
 2 lbs. of beef
 1 pkg. spaghetti
 1 pt. strained tomatoes
 2 t butter or bacon fat
 $\frac{1}{4}$ t salt
 $\frac{1}{8}$ t pepper
 $\frac{1}{8}$ t celery seed

Directions: Cook spaghetti the same as vermicelli in Number 19 and put it into the smoking hot fat in spider and brown it. Add the tomato and seasoning. Boil for two or three minutes.

Serve hot. This amount will serve eighteen or twenty pupils.

22—Corn Meal Mush. Time: 3 hours.

Recipe—
 1 $\frac{1}{2}$ qts. milk
 3 c boiling water
 1 c cold water or
 1 c milk
 1 c corn meal
 1 t salt

Directions: Pour boiling water into kettle. Put salt into it. Make the cornmeal and cold water or the cornmeal and milk into a smooth batter. Stir while pouring

this into the boiling salted water. Continue cooking it for two or three hours as directed for cereals. Serve with milk and sugar. This amount will serve ten or twelve pupils.

23—Hot Milk and Bread. Time: 5 minutes.

Recipe—
 Allow $\frac{3}{4}$ c to 1 c a person
 Each pupil brings two or
 more slices of bread

Directions: Heat the milk in double boiler or an improvised one, until a thin tissue forms

over the top. Serve at once. Pupils break the bread into it.

24—Cream of Cabbage. Time: 1 hour.**Recipe—**

1 c milk
1 T butter
1 T flour
 $\frac{1}{4}$ t salt
A dash of pepper
1 pt. of cabbage

Directions: Remove the wilted or very green leaves from the cabbage. Cut into medium-sized pieces enough to fill a pint measure or a cup twice. Wash and

put to cook as directed for vegetables. Cook uncovered for one hour. Add enough water to liquid in which the cabbage is cooked to make one cupful and pour it into the white sauce. Serve hot. This amount serves four pupils.

25—Steamed Soft Custard. Time: 20 to 30 minutes.**Recipe—**

1 egg
1 c scalded milk
1 t sugar
1-16 t salt

Directions: Beat egg in a bowl until the yolk and white are thoroughly mixed, and add the sugar. Stir while adding the

scalded milk. Pour mixture into a pail with tight fitting cover or upper part of a double boiler, and place it in a pan of boiling water. Keep water hot, but not boiling. Allow to cook until you have a smooth custard that will cut with a knife and not stick to it. This amount will require cooking from twenty to thirty minutes. For a larger quantity a longer time would be necessary. This amount will serve two persons.

26—Creamed Corn. Time: 20 minutes.**Recipe—**

1 pt. canned corn
1 pt. thin sauce
1 t sugar
Salt and pepper

Directions: Make a thin white sauce by first method as directed in sauces. Open a can of corn and empty it an hour before

time to use. To do so will improve the flavor. Heat the corn, if necessary, and add a little water to keep from burning. Pour the corn into sauce, add sugar, and salt, and pepper to taste. This amount will serve eight or nine pupils.

27—Scalloped Corn. Time: 35 minutes.**Recipe—**

1 can of corn
 1 c medium white sauce
 $\frac{1}{2}$ T sugar
 $\frac{1}{4}$ t salt
 3 T butter
 $\frac{3}{4}$ c bread crumbs

Directions: To the seasoned medium white sauce add corn, sugar and salt. Butter the baking dish. Cover the bottom with a layer of corn and sauce. Cover

this with a layer of buttered bread crumbs. Use stale bread crumbs. Place butter and crumbs in pan on stove, and stir until butter is melted. Continue until all is used. Have crumbs over the top. Bake in a medium oven for twenty-five minutes. This amount will serve eight pupils.

28—Cream of Celery. Time: 40 minutes.**Recipe—**

$1\frac{1}{4}$ c of celery
 $1\frac{1}{4}$ c boiling water
 $\frac{1}{4}$ t salt
 1 c medium sauce

Directions: Cut into inch pieces the coarse parts of celery after it has been thoroughly cleaned. Put to cook in boiling

salted water. Keep covered with water, and boil until tender, about thirty minutes. Press through a sieve, add enough boiling water to pulp, and of liquid to make one and one half cupfuls. Combine with sauce. Serve hot. This amount will serve five pupils.

29—Rolled Oats with Dates or Bananas. Time: 4 to 7 hours.**Recipe—**

Cooked rolled oats as in
 Number 33
 $\frac{3}{4}$ c pitted dates or
 3 bananas
 3 c milk

Directions: Cook rolled oats as directed in Number 33. Shortly before serving add the dates which are best cut in fourths. Serve with milk and

sugar. If bananas are used, peel, slice into a dish and sprinkle with sugar to prevent discoloration. Cover dish until ready to serve. To each service of rolled oats add two tablespoonfuls of bananas.

30—Boiled Rice. Time: 2 to 3 hours.**Recipe—**

1 qt. milk
1 c rice
1 T salt
4 c boiling water

Directions: Cook as directed in Number 16. Heat the milk a little or just keep it in the room so that it will not be cold. Keep

it covered to protect it from dust. Serve rice hot with milk and sugar. This amount will serve eight to ten pupils.

31—Scalloped Potatoes. Time: 1½ hours.**Recipe—**

4 medium potatoes
1½ c milk
1 T salt
1 T butter
2 T flour
Pepper to taste

Directions: Wash, pare, and cut potatoes in one eighth inch slices into a buttered baking dish. On each layer of potatoes sprinkle flour, salt, and pepper, and dot

with bits of butter. Continue until all are used. Pour hot milk over the potatoes, but not enough to cover the top layers. Place in a hot oven and bake, covered for the first half hour, but uncover to allow to brown. Bake for another half hour or until tender when tried. Add more milk, if the potatoes appear dry. Serve hot. This amount will serve six pupils.

32—Creamed Chipped Beef. Time: 15 minutes.**Recipe—**

1 c medium sauce not
salted
½ c chipped beef (packed)

Directions: Cut beef into small pieces, put it into a small dish that will stand being heat-

ed. Cover with cold water and heat slowly. When hot, the meat will have soaked up half of the water. Make sauce as directed for sauce, but omit the salt. Pour the meat and water in which it has soaked into the white sauce. Add salt, if required. This amount will serve ten pupils. If desired, serve creamed chipped beef with boiled rice as prepared in Number 30.

33—Oatmeal Mush. Time: 6 to 10 hours.

Recipe—

3 c milk
1 c rolled oats
3 c boiling water
1½ T salt

Directions: Cook as directed in cooking cereals. Start cooking at noon of the preceding day.

Cook during afternoon. Set vessel where it will keep warm over night and continue cooking the following forenoon. Serve with milk and sugar. This amount will serve six to eight pupils.

34—Baked Custard. Time: 25 to 30 minutes.

Recipe—

1 c milk
1 egg
1 t sugar
1-16 t salt scant

Directions: Combine the same as in Number 25. Pour into the teacups and place them in a pan of boiling water. Place pan in

very slow oven. Bake thirty minutes or until the point of a paring knife will cut it and come out clean. This amount will serve two persons.

35—Baked Hubbard Squash. Time: 1½ hours.

Recipe—

One piece about 4½ inches
by 2½ inches for each
person

Directions: Wash and dry. Cut the squash into halves, remove the seeds and stringy portion, cut

into pieces and place in hot oven either in a pan or on grate of oven. If the oven does not bake evenly, change pieces around. After an hour sprinkle with salt, and bake another half hour. Serve hot with butter, salt and pepper.

36—Soft-boiled Eggs. Time: 8 to 10 minutes.

Recipe—

1 egg
1 c water

Directions: Place eggs in pan of boiling water, allowing one cupful to an egg. Cover and let stand

where there is but little heat for eight or ten minutes, depending on how soft they are desired. Remove and cover with cold water for a second. Serve at once.

37—Baked Beans. Time: 10 to 12 hours.

Recipe—

- 1 pt. beans
- 3 t salt
- $\frac{1}{4}$ t soda
- 1 t sugar
- 2 slices salt pork
- 1 t molasses (scant)

Directions: Pick over beans if necessary, and soak over night in two or three times as much water. In the morning put to cook in cold water to cover, adding two tea-

spoonfuls of salt and the soda. Let boil ten minutes, drain, rinse with cold water and drain again. Cut pork, about one quarter of a pound, into half-inch cubes. Put part of pork in the bottom of the jar and the balance nearer the top after most of the beans are in the jar, add sugar, molasses, and salt, unless pork is very salty. Cover with boiling water. Bake in a slow oven the balance of the day, and from early next morning continue baking them until noon. A regular bean pot or crock with a plate to cover it is used. Cook covered the last half hour, and uncover to brown. Beans should cook slowly from ten to twelve hours. If all the water is absorbed before they are cooked, add boiling water, but not enough to cover. This amount will serve eight to ten pupils.

38—Creamed Cabbage. Time: 1 hour.

Recipe—

- 1 c medium sauce
- 1 qt. cabbage

Directions: Prepare cabbage and cook in just enough water to cover. Toward the last allow the

water to boil down to about one half a cupful. Pour cabbage and liquid into sauce. Add more seasoning, if required. This amount will serve six to eight pupils.

39—Creamed Eggs. Time: 5 minutes.

Recipe—

- 1 egg
- $\frac{1}{4}$ c white sauce

Each pupil should bring a hard-boiled egg. Prepare enough white sauce to serve all, allowing

one fourth of a cupful for each person.

40—Beef Stew. Time: 3 to 4 hours.**Recipe—**

4 lbs. of ribs
2 qts. water
1½ t salt
½ c flour
5 t bacon fat
½ c each of diced onions,
carrots, parsnips, turnips,
potatoes
6 pepper corns

Directions: Start to stew early in the morning. Proceed as for beef broth, brown part of meat before stewing it, and keep tightly covered. Brown all the vegetables, add them and cook fifteen or twenty minutes more. Thick-

en with flour, using the third method of making sauces and thickening soups.

41—Macaroni with Tomato Sauce. Time: 2 hours.**Recipe—**

½ pkg. macaroni
1 c strained tomato
1 T flour
1 T butter
¼ t salt
A dash of pepper

Directions: Cook macaroni as in Number 5. With strained tomato, flour and butter make a sauce and season it as directed for sauces. Pour the macaroni

into sauce, heat for a minute or two so that macaroni will be hot. Serve. This amount will serve seven or eight pupils.

42—Pea Soup. Time: 10 to 12 hours.**Recipe—**

1 c dry peas
1 slice salt pork
5 c water
½ t soda
2 t salt

Directions: If necessary pick over. Soak in one quart of water over night. In the morning place peas, soda, and one teaspoonful of salt in kettle with enough cold

water to cover. Boil for ten minutes, drain, rinse and drain again. Add pork cut in half-inch cubes, one teaspoonful of salt and five cupfuls of cold water, cover and allow to simmer all day and the next forenoon. If too strong, add more water about half an hour before lunch time. Season with salt and pepper to taste. This amount is enough to serve a dozen pupils.

43—Scrambled Eggs. Time: 3 minutes.**Recipe—**

1 egg
1 T hot milk
or hot water
1 t bacon fat or butter

Directions: Break the required number of eggs into dish and beat until yolks and whites are well mixed. Stir while adding hot

water or milk. Place one teaspoonful of bacon fat or butter in a hot spider. When fat is hot, pour in egg mixture, and decrease the heat. As the egg cooks near the bottom of the pan stir the mixture. When cooked, the egg should be of a soft creamy texture. Allow one egg to a person.

44—Creamed Carrots. Time: 30 minutes.**Recipe—**

1 pt. diced carrots
1 c medium sauce
 $\frac{1}{4}$ t sugar

Directions: Prepare carrots as directed for vegetables. Cook for thirty minutes in just enough

boiling water to cover. Allow the water to boil down toward the last. Turn carrots and the liquid they are cooked in into the white sauce. Add sugar. Serve. This amount will serve five pupils.

45—Mashed Turnips. Time: 2 hours.**Recipe—**

1 medium sized turnip
 $\frac{1}{2}$ c hot milk
1 T butter
1-16 t pepper
Salt to taste

Directions: Prepare and cook the turnip as for the other vegetables. Mash. Add milk, butter and pepper. This amount will serve five or six pupils.

46—Creamed Cabbage with Cheese. Time: 1 hour.**Recipe—**

1 qt. cabbage
1 c medium sauce
 $\frac{1}{4}$ to $\frac{1}{2}$ c grated cheese

Directions: Prepare and cook the cabbage as in Number 38. Make sauce and to it add the

grated cheese. Use stale cheese, as it is more easily grated. This amount will serve six to eight pupils.

47—Meat with Tomato Sauce. Time: 25 minutes.**Recipe—**

1 c meat packed
 1 c strained tomato
 1 t butter
 1t flour
 $\frac{1}{4}$ t salt
 Pepper to taste

Directions: Make a sauce with the tomato, flour and butter, add seasoning and boiled meat from Number 50, and cut into small pieces. Cook until meat is heat-

ed, stirring, occasionally to prevent from burning. This amount will serve six to eight pupils.

48—Steamed Rice with Raisins, Milk and Sugar. Time: 2 to 3 hours.**Recipe—**

1 c rice
 3 c boiling water
 1 qt. milk
 1 T salt
 1 T sugar
 $\frac{1}{2}$ c raisins

Directions: Cook the rice for ten minutes, using three cupfuls of salted water then add sugar and one cupful of milk and cook for two or three hours as direct-

ed for cereals. Serve with milk and sugar. This amount will serve nine or ten pupils.

49—Buttered Beets. Time: 3 to 4 hours.**Recipe—**

$1\frac{1}{2}$ c diced beets
 1 T butter
 $\frac{1}{4}$ c salt
 A dash of pepper

Directions: Wash and put beets to cook with skins. Do not cut the roots of beets, because in the process of cooking

they bleed too much and spoil the color and flavor. Boil from two to four hours. It is wise to wash the beets, and put the required amount of water in kettle the day before. Whoever tends the fire can put the kettle on, so that the beets can be put on about eight o'clock. Keep them boiling continually. When tender, drain and cover with cold water for a minute or two. Drain again. Remove skins. Dice, add butter, salt and pepper. Two medium sized beets diced amount to about one and one half cupfuls. This amount is enough to serve three pupils.

50—Beef Broth with Rice. Time: 4 to 5 hours.

Recipe—

2 t rice
 $\frac{1}{4}$ t salt
 1 c boiling water
 1 c of meat stock

Directions: Prepare soup stock as directed in Number 7. Cook rice for two or three hours in boiling salted water, as directed

in cooking cereals. When cooked, drain well and add to soup stock. This amount will serve two pupils.

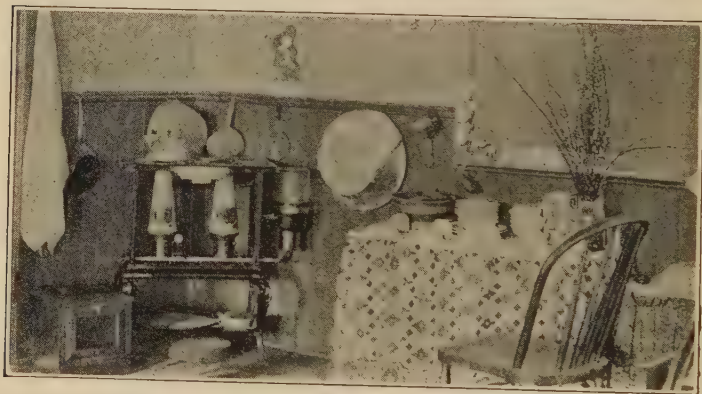


Figure 97. Equipment for the hot lunch. Photograph taken in a rural school. Note the improvised cupboard make out of a dry goods box and covered with curtain.

REFERENCES FOR DOMESTIC SCIENCE

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Farmers' Bulletins, Department of Agriculture, Washington, D. C.: Meats, Composition and Cooking, No. 34; Facts About Milk, No. 42; Care of Milk on the Farm, No. 63; Milk as Food, No. 74; Bread and Bread Making, No. 112; Beans, Peas and Other Liegumes, No. 121; Eggs and Their Uses as Food, No. 128; Principles of Nutrition, No. 142; Cereal Breakfast Foods, No. 249; Preparation of Vegetables for the Table, No. 256; Use of Fruit as Foods, No. 293.

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CHAPTER XX

MANUAL TRAINING

How can manual training be taught in a one-room rural school? This is a question I have heard put in a disgusted tone by more than one skeptic. The most effective answer I know is that it actually is being taught in many such schools with a degree of success unlooked for even by its most ardent supporters. Sewing for the advanced students has become quite common in some communities, but when this subject is taught to the girls the older boys are left with only book work. Such an arrangement gives not only an unbalanced course, but it is conducive to "killing time" on the part of the boys.

The fact that young women are teachers in so many of the country schools is another objection. Is it not absurd to expect a woman to teach carpentry? Yes, but we are not advocating teaching carpentry. That women can direct the manual training as outlined in this chapter as well as that young men can teach sewing to the girls, and that both can get excellent results, has been proved conclusively by several of our own teachers in the associated schools by their exhibits at the annual industrial contests. It is not at all necessary that the teacher be expert in either of these subjects, but she should have had some elementary training in both during the course that prepared her for teaching, so that the industrial work may be intelligently directed.

Semi-graded schools, with two or more departments have better opportunities for carrying on industrial work. One teacher should be a man who can conduct the manual

training, and a woman should take the girls' work. The best country schools now have basements and ample provision can easily be made for industrial training. The one-room schools, however, are rapidly passing. The model rural school will take into account more than "book larnin'" in the education of its students.

The value of manual training in rural schools is still questioned in some communities. Usually, however, objection comes from those least able to judge. The mere whim of some individual in the district, who probably has never had even a common school education, is sometimes sufficient to put a damper on this work or even to prevent its being done altogether. If manual training is a good thing for the town boy, and it is now generally conceded that it is, it is better for the country boy, as he is likely to make more direct use of it. After all, educators know that manual training is not only valuable because the articles made are useful, but because this kind of training is as necessary for a well rounded education as the training of the head in such subjects as arithmetic. How much of all the arithmetic that a boy studies in school does he actually use out of school? Very little. And yet a student often studies this subject eight years or more in school without mastering the little he does need to know. Does it not seem reasonable that part of this time spent on those parts of arithmetic that are not used out of school, could be profitably spent in applying manual training? The same statement is true of some other subjects. Experience proves that the boys who are best in manual training are also best in arithmetic. It is only reasonable that they should be.

Requisites to the success of this subject in the country school might be summed up under a few heads, as follows:

Encouragement, a work bench, a few simple and inexpensive tools, some lumber and other supplies, definite time for the work each week, some simple working drawings, and an enthusiastic teacher to direct the work. These are so important that each will be discussed briefly.

A little encouragement from the parents, from the county superintendent, and from the teacher will go a long way toward getting a good start. The boys can be depended upon to do their part. It is always best to reserve judgment until a new project has been thoroughly tried before condemning it. Parents, school officials, and teachers are all guilty at times. I often think of a blunt but nevertheless true statement made by a gentlemen who was discussing this topic with me. He said, "Any fool can criticise, but it takes a philosopher to plan and direct work that will bring results."

A workbench can probably be made by the students themselves with a little help from the teacher or from some man in the community who is "handy" with tools. It can be made of pine, but should be strong and durable. Some of our students in the normal training department made their own benches to take with them to their schools. Such a plan is commendable, and can be done by persons who will teach near the school where they were trained. In another instance a board member, who had a set of carpenter's tools, offered to go to the school once a week and assist the teacher with the manual training.

The tools needed are a try-square, hammer, backsaw, a few coping saws, plane, dividers, chisel, a ruler for each student, a brace and a set of bits, wood file, screw driver, crosscut saw, and a file and saw set for keeping the saws in shape. The district should buy the set of tools, but it is not necessary to wait for it to do so, if everything else is

favorable. Students can bring tools enough from home to start, and the set will be all the more appreciated, if the six or eight dollars necessary to purchase it are raised by the school. An entertainment of some kind in which the boys take a prominent part will be supported by the community that is really interested in the welfare of its young people. The local hardware man will probably give a liberal discount on the list for the good of the cause.

The supplies needed can be secured from a local lumberman by the teacher or, better still, by the schoolboard. The boys may pay for the actual cost of the articles made. In this way the only cost of the manual training will be the initial cost of the set of tools. The teacher can readily estimate the amount of each kind of material needed after carefully going over the list of stock given for the projects shown in this chapter. They will not all be given one year. After those that will be used have been selected from the list, determine the amount of lumber needed by the number of pupils there will be to make each project. It is well to have on hand a little more lumber than is actually needed for each article. The following kinds of lumber will be needed: Basswood, one fourth inch thick, and three eighths inch thick; pine, three eighths inch thick, one half inch thick, three quarters inch thick, one and one half inches thick, and one and three fourths inches thick; oak, one half inch thick, one inch thick, one and one half inches thick. By referring to the drawings and the material for each project, it will be seen what the dimensions are. If it is impossible to get the exact thickness wanted, get the nearest to it. The local lumber merchant will be glad to send for just what is needed, if he is advised a few weeks before the bench work begins. Lumber cannot usually be obtained as quickly as groceries. A few sheets of fine, medium, and coarse sandpaper should

be kept on hand. This is cut into small pieces for use. The coarse should be used first, and the finest for getting the smooth surface. A bottle of shellac, a small brush, and a can or two of stain will complete the materials needed.

The time given to manual training will naturally vary with the conditions. If possible, give two hours a week, although one period will be better than none. From three to four o'clock twice a week, while the girls are taking work in sewing, is the time proposed on the Three Division program in Chapter VIII. This is enough time in which to get the boys interested. They will usually put in extra time before and after school, if given the opportunity.

Working drawings are necessary for accurate work. Those given here are simple, and can be easily understood. They should be studied very carefully before attempting to make the articles. Upon the ability to read the drawings and directions well will largely depend the success of the project.

The teacher is not expected to do the work for the pupils. She should be familiar with the tools used, and know how to interpret the working drawings and directions. In this way she can see that the students understand just what they are doing. The arithmetic lessons can be made practical by supplementing with problems from the manual training exercises as well as from the hot lunch recipes and the sewing models. The language lessons can also be enriched from the same sources. Here is the teacher's opportunity.

The student should study from reference books the use of each tool used and how to take care of it and keep it sharp. He ought also to know where each kind of wood used grows, how it is manufactured, and why it is used instead of some other kind of material. The same information should be obtained for all other materials used. This useful knowledge will make a basis for good booklet work

in the language classes. Chapter XXV can be used as a reference for this work.

The plan suggested for class work is the same as that for the sewing classes. The children of the First Division are too young for this work. They may either be dismissed or given simple industrial work. The boys of the Second Division, fourth and fifth years, should work together, and complete the first nine projects during the two years they are in this division. This amount of work may not seem to be much; but, if it is well done, it lays a good foundation for the advanced work. "Make haste slowly," and work for quality, not quantity. The boys of the Third Division, sixth and seventh years, will constitute the other class, and they should complete the list of projects given during the two years they are in the division. If the school is not organized on the Three Division plan, I should then have the fifth and sixth-year pupils together in the first class in manual training and sewing, and the seventh and eighth in the second class. The fourth, in that case, should do industrial work with the First Division. Chapter XVII discusses the elementary work. The following outlines give the work in detail for the four years' work of the two divisions. Both classes can work at the same time, if there is bench room.

ARTICLES SUITABLE FOR RURAL SCHOOLS

The student should study each cut of the article to be made very carefully before attempting to do the work. Read directions and consult the cut again before starting.

1—Key Label

Material: Basswood as follows: 4 inches by $1\frac{1}{4}$ inches by $\frac{1}{4}$ inch.

Tools Used: Chisel, saw, brace and bit, and ruler.

Directions: Saw out the stock 4 inches long and $1\frac{1}{4}$ inches wide. Then lay out the key label following the

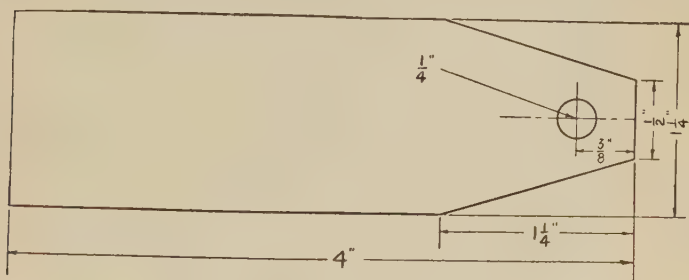


Figure 98. Key label.

dimensions given in the cut. Chisel the edges carefully down to the line. Bore the hole.

2—Match Scratcher

Material: Basswood as follows: $3\frac{3}{8}$ inches by $2\frac{1}{2}$ inches by $\frac{1}{4}$ inch.

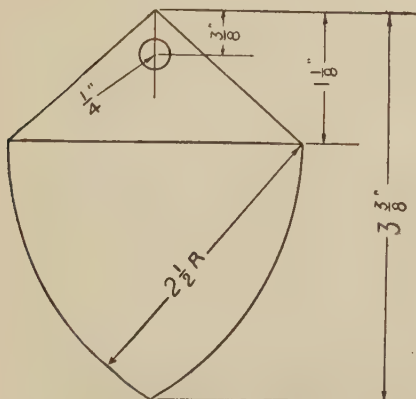


Figure 99. Match scratcher.

Tools Used: Chisel, saw, dividers, and brace and bit.

Directions: Saw out the stock $3\frac{3}{8}$ inches long and $2\frac{1}{2}$ inches wide. Lay out match scratcher according to directions in the cut, using the dividers to make the arcs. Chisel to the proper shape and bore the hole. Cut out. Sandpaper till smooth. Fit

the sandpaper and fasten on with glue. This is a useful article and will make a nice little remembrance.

3—Fishline Winder

Material: Basswood as follows: 6 inches by $2\frac{3}{4}$ inches by $\frac{1}{4}$ inch.

Tools Used: Chisel, saw, knife and ruler.

Directions: Saw out the stock 6 inches long and $2\frac{3}{4}$ inches wide. Lay out the fishline winder, following

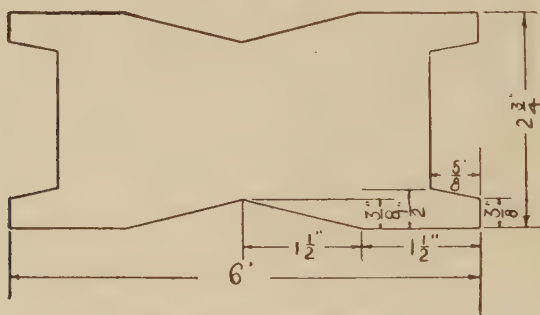


Figure 100. Fishline winder.

directions given in the cut. Chisel the sides to shape. With a sloyd knife or jackknife whittle out the ends to the proper shape. Every boy will find a use for this article.

4—Plant Marker

Material: Basswood as follows: one piece $4\frac{1}{2}$ inches by $2\frac{1}{2}$ inches by $\frac{1}{4}$ inch, one piece $6\frac{1}{2}$ inches, by $1\frac{1}{4}$ inches by $\frac{1}{2}$ inch.

Tools Used: Chisel, saw, dividers, knife and hammer.

Directions: Saw out the stock one piece $4\frac{1}{2}$ inches by $2\frac{1}{2}$ inches and one piece $6\frac{1}{2}$ inches by $1\frac{1}{4}$ inches. Lay out the face of the plant marker; then lay out the stake. Using the knife, whittle out the face. Chisel out the stake.

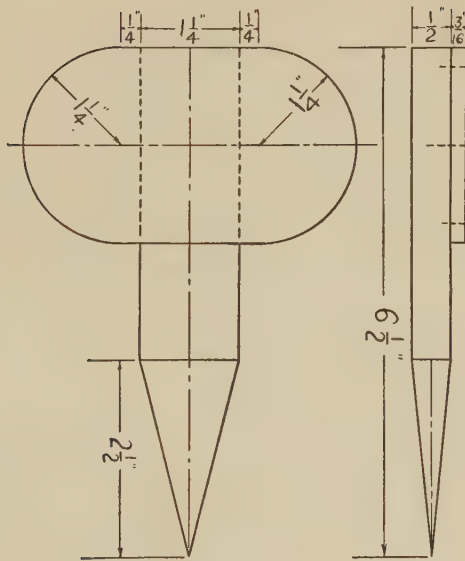


Figure 101. Plant marker.

Nail the two pieces together. The plant marker will be found very useful in the spring when the vegetable garden is being made.

5—Whisk Broom Holder

Material: Basswood as follows: one piece 8 inches by 5 inches by $\frac{1}{4}$ inch; one piece 5 inches by 5 inches by $\frac{1}{4}$ inch; two pieces 5 inches by $1\frac{1}{4}$ inches by $\frac{1}{4}$ inch.

Tools Used: Saw, plane, brace and bit and hammer.

Directions: Saw out the stock according to directions. Lay out the back, front and side pieces. Plane the back, front and side pieces to the proper size. Then put the parts together. Bore the hole to hang the holder. This is a useful little article for the kitchen or bedroom.

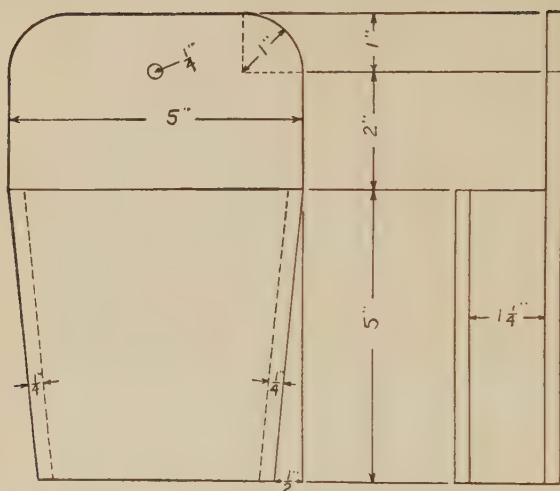


Figure 102. Whisk broom holder.

6—Salt Box

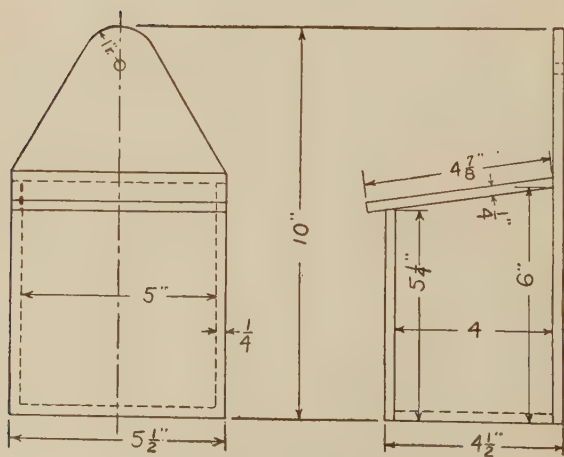


Figure 103. Salt box.

Material: Basswood as follows: one piece 10 inches by 5 inches by $\frac{1}{4}$ inch; one piece 5 inches by 5 inches by $\frac{1}{4}$ inch; one piece 5 inches by $4\frac{7}{8}$ inches by $\frac{1}{4}$ inch; two pieces 6 inches by 4 inches by $\frac{1}{4}$ inch; one piece 4 inches by 5 inches by $\frac{1}{4}$ inch.

Tools Used: Saw, plane, hammer and brace and bit.

Directions: Lay out the back, front, bottom and two sides. Plane these pieces to the proper size. Put the parts together, using hammer and small nails. Bore the hole. This is a very useful article for the kitchen. The salt will be handy and kept clean, if the cover of the box is closed.

7—Match Box

Material: Basswood as follows: one piece $3\frac{1}{2}$ inches by $3\frac{1}{2}$ inches by $\frac{1}{4}$ inch; one piece $3\frac{1}{2}$ inches by 2 inches

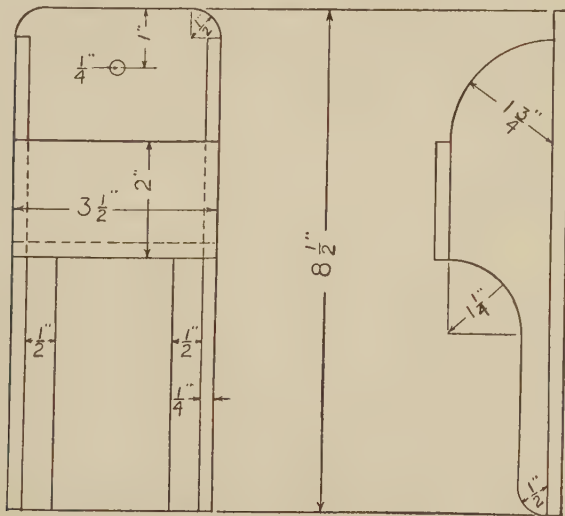


Figure 104. Match box.

by $\frac{1}{4}$ inch; one piece 3 inches by $1\frac{3}{4}$ inches by $\frac{1}{4}$ inch; two pieces 8 inches by $3\frac{3}{4}$ inches by $\frac{1}{4}$ inch.

Tools Used: Plane, saw, hammer, knife, dividers, brace and bit.

Directions: Saw out the stock to the proper size, following the cut and directions given above. Lay out the parts, plane and whittle to the proper size and shape. Nail the pieces together and bore the hole.

8—Toothbrush Holder

Material: Basswood as follows: one piece $7\frac{1}{2}$ inches by $2\frac{3}{4}$ inches by $\frac{1}{4}$ inch; one piece $2\frac{3}{8}$ inches by $1\frac{1}{2}$ inches by $\frac{3}{8}$ inch.

Tools Used: Saw, hammer, plane, brace and bit.

Directions: Saw out the stock according to directions. Lay out the back and the holder. Plane the back and holder to the proper size. Lay out the chamfer, or bevel, on the

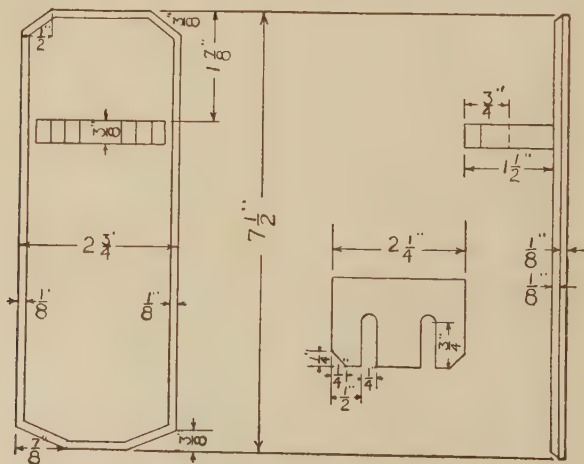


Figure 105. Toothbrush holder.

back. Plane off the beveled edge to the line. Lay out the holes on the holder and bore them accurately with the brace and bit. Make the saw cuts. Study the drawing carefully. This is an article that should be in every home so that each member of the family can have a definite place for his toothbrush. Incidentally, it may be that more brushes will be used, if the racks are made and taken home.

9—Bird House

Material: Basswood as follows: two pieces $5\frac{1}{4}$ inches by $3\frac{1}{2}$ inches by $\frac{1}{4}$ inch; two pieces $4\frac{1}{8}$ inches by 4 inches by $\frac{1}{4}$ inch; one piece $4\frac{7}{8}$ inches by $3\frac{3}{4}$ inches by $\frac{1}{4}$ inch; two pieces $5\frac{1}{2}$ inches by $3\frac{1}{2}$ inches by $\frac{1}{4}$ inch.

Tools Used: Saw, plane, hammer, and brace and bit.

Directions: Lay out end pieces and cut them to the proper size with the saw. Lay out roof boards and plane

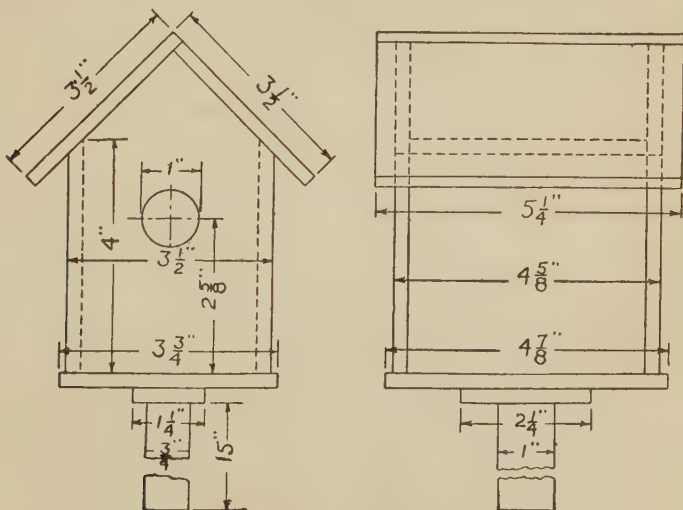


Figure 106. Bird house.

to size. Plane the post to size. Assemble the pieces and fasten together. Paint any color desired. Gray or green are probably best. Students should be encouraged to make bird houses and erect them in the home yards, as they will then become more interested in all common birds, seeing their beauty as well as usefulness.

10—Planing Exercise

Material: Pine $9\frac{1}{4}$ inches by $1\frac{3}{4}$ inches by $1\frac{3}{4}$ inches.

Tools Used: Plane and saw.

Directions: Plane and square a face. Test it with try-square. From this face square an edge. Next square one end with the squared face and edge. Cut to length and square end. Cut to width and square edge. Cut to

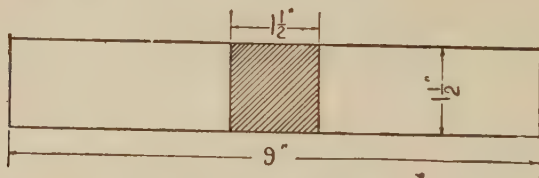


Figure 107. Planing exercise.

thickness and square face. While the plane is necessary in making the objects listed above, it is not necessary to make up a planing exercise until more complicated projects are executed. If students do not get this exercise well the first time, it should be repeated, as they will need to be able to plane to the line in making the exercises that follow.

11—Sawing Exercise

Material: Pine $9\frac{1}{4}$ inches by $1\frac{3}{4}$ inches by $1\frac{3}{4}$ inches.

Tools Used: Plane and saw.

Directions: Plane and square up the stock to 9 inches and $1\frac{1}{2}$ inches square. Study the drawing and make saw

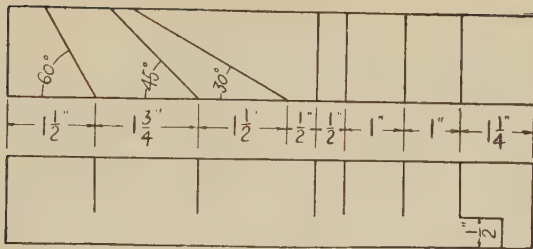


Figure 108. Sawing exercise.

cuts as designated in the drawing, using the backsaw. This exercise is also very necessary in order to do accurately the work that follows.

12—Bread Board

Material: Pine 12 inches by 6 inches by $\frac{3}{4}$ inch.

Tools Used: Plane, saw, dividers, wood file and sand-paper.

Directions: Saw out the stock 12 inches by 6 inches by $\frac{3}{4}$ inch. Square one face. Square one edge with the

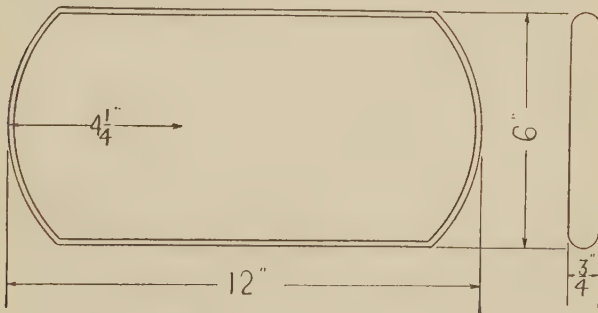


Figure 109. Bread board.

squared face. Square one end with the squared face and edge. Cut to proper length and square the end. Cut to proper width and square the edge. Cut to proper thickness

and square the face. Lay out curved ends with the dividers and cut with chisel. Lay out rounded bevel and work round with the plane. Smooth up the bevel with the wood file. Sandpaper the entire board until it is perfectly smooth.

13—Sleeve Board

Material: Pine as follows: Two pieces 22 inches by $4\frac{3}{4}$ inches by $\frac{3}{4}$ inch; two pieces $8\frac{1}{4}$ inches by 4 inches by $\frac{3}{4}$ inch.

Tools Used: Saw, plane, chisel, wood file, sandpaper, and brace and bit.

Directions: Saw out the stock according to directions. Plane the bottom to the proper size and round the four corners. Lay out the top board and plane to the proper

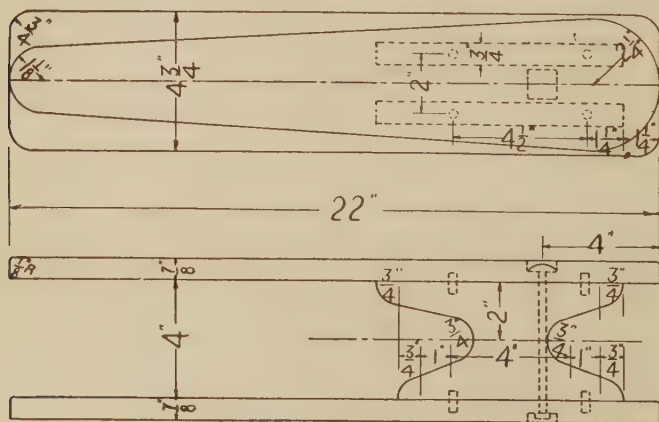


Figure 110. Sleeve board.

size and shape. Make dowel holes and put in the dowels. Put in bolts. Use wood file and sandpaper on all rough edges. Sandpaper the top until perfectly smooth. This is a very useful article in the home and not difficult to make, if the drawing and the directions are followed carefully.

14—Knife Box

Material: Pine as follows: one piece $12\frac{3}{4}$ inches by $6\frac{1}{2}$ inches by $\frac{3}{4}$ inch; two pieces 8 inches by 5 inches by $\frac{3}{4}$ inch; two pieces 12 inches by 3 inches by $\frac{3}{4}$ inch.

Tools Used: Plane, saw, hammer, dividers, brace and bit and sandpaper.

Directions: After studying the drawing, saw out the stock. Plane the bottom piece to the proper size. Lay

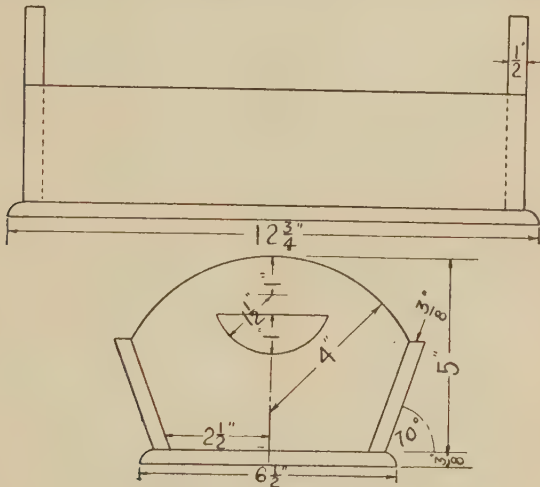


Figure 111. Knife box.

out the rounded bevel and plane. Lay out end pieces and cut them to shape. Cut the holes for handles in the end pieces, using brace and bit. Cut side pieces to proper size. Assemble and nail pieces together. Sandpaper the entire box until smooth. This is another very useful article. While it is called a knife box, knives, forks and spoons can be kept in it.

15—Floor Broom Holder

Material: Pine as follows: one piece 8 inches by 3 inches by $\frac{3}{4}$ inch; one piece $5\frac{1}{2}$ inches by $2\frac{1}{2}$ inches by $\frac{3}{4}$ inch.

Tools Used: Plane, saw, brace and bit, chisel, sandpaper and screw driver.

Directions: Square up the bottom piece and the holder to size, following the drawing and the directions. Lay out the bevel on the bottom piece and plane the bevel. Lay

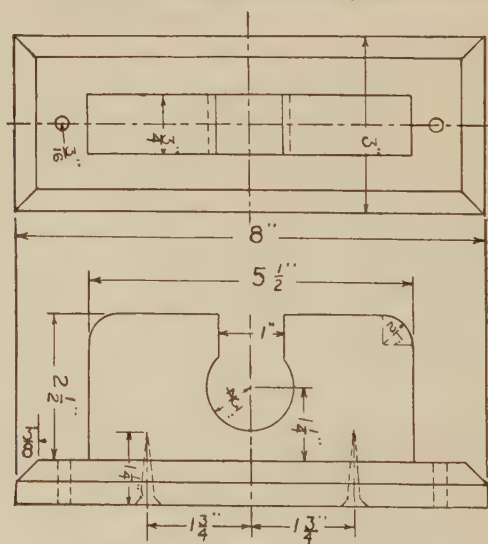


Figure 112. Floor broom holder.

out the holder and cut to the proper shape. Bore the hole for the holder. Make saw cuts. Assemble and fasten the pieces together with screws, as shown in the drawing. Sandpaper carefully until smooth. This useful little article will be welcomed by any housekeeper. Unless there is a proper place for the broom, it is often short-lived and usually in the way.

16—Nail Box or Tray

Material: Pine as follows: two pieces $14\frac{3}{8}$ inches by $2\frac{1}{8}$ inches by $\frac{3}{8}$ inch; three pieces $8\frac{1}{4}$ inches by $2\frac{1}{8}$ inches by $\frac{3}{8}$ inch; one piece $8\frac{1}{4}$ inches by $3\frac{1}{8}$ inches by $\frac{3}{8}$ inch.

Tools Used: Plane, saw, hammer, chisel, brace and bit and sandpaper.

Directions: After studying the drawing, plane the sides and ends to the proper sizes. Plane the partitions to size. Cut out the handle and make it smooth. Assemble

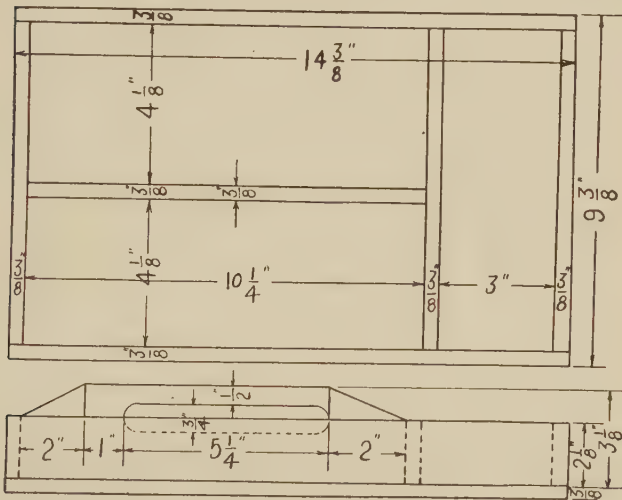


Figure 113. Nail box or tray.

and nail pieces together. Sandpaper until smooth. Every boy should know the different sizes of nails and what they are used for. Each division of the tray may be used for one size of nails. "A place for everything and everything in its place" can be followed with a nail box.

17—Necktie Rack

Material: Oak as follows: three pieces 16 inches by $\frac{7}{8}$ inches by $\frac{1}{4}$ inch; two pieces 5 inches by $1\frac{3}{4}$ inches by $\frac{1}{2}$ inch.

Tools Used: Plane, saw, chisel, sandpaper and hammer.

Directions: Plane the front and back pieces to the proper size, following the drawing. Lay out the ends and

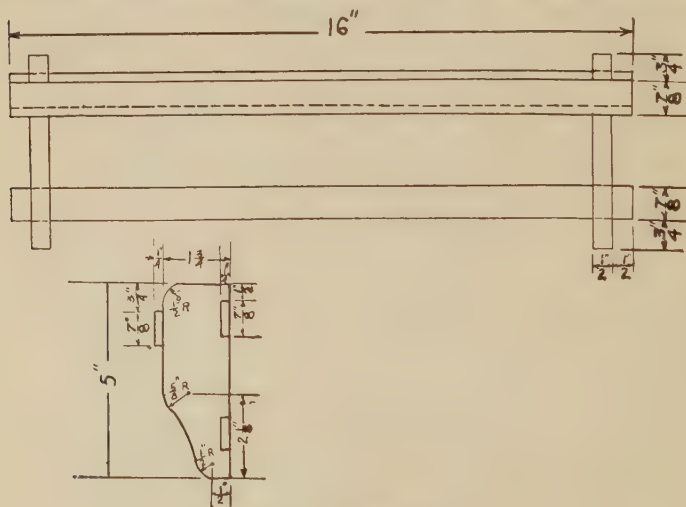


Figure 114. Necktie rack.

cut to proper shape. Nail the pieces together, and sandpaper carefully. Stain, using any desired color. The stain may be put on by using a cloth and rubbing it into the wood. This handy article would make a useful Christmas present.

18—Towel Roller

Material: Pine as follows: one piece $21\frac{3}{4}$ inches by $4\frac{3}{8}$ inches by $\frac{3}{4}$ inch; two pieces 3 inches by 2 inches by $\frac{3}{4}$ inch; one piece 20 inches by $1\frac{1}{2}$ inches by $1\frac{1}{2}$ inches.

Tools Used: Plane, saw, chisel, screw driver, wood file and brace and bit.

Directions: Saw out the stock. Plane and square up the back, the ends and the roller. Lay out the bevel on the back and plane it. Lay out the ends and cut to shape. Bore the holes in the ends for the roller. Plane the roller until it is round. Cut the tenons on the ends of the roll-

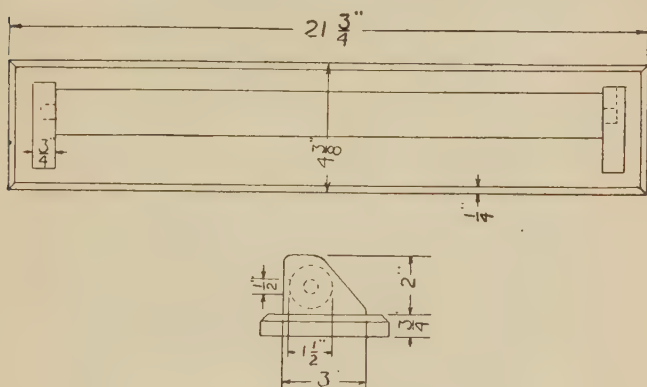


Figure 115. Towel roller.

er so they will fit the holes in the ends. Smooth the roller with the wood file. Fasten the end pieces to the back with screws, as shown in the drawing. Sandpaper all the pieces until they are smooth. Rub on the stain with a cloth. Put the roller in place. While the family towel is not sanitary, it is better to have it on a roller than merely hung up on a nail. A roll of paper toweling could be fastened on the roller instead of the common towel.

19—Milk Stool

Material: Pine as follows: two pieces 10 inches by 9 inches by $\frac{3}{4}$ inch; one piece 16 inches by $5\frac{1}{2}$ inches by $\frac{3}{4}$ inch; one piece 11 inches by $5\frac{1}{2}$ inches by $\frac{3}{4}$ inch.

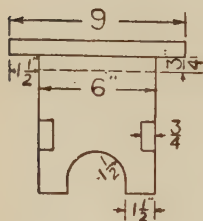
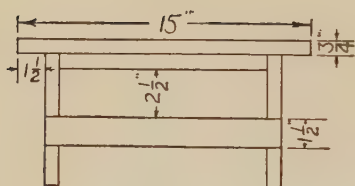


Figure 116. Milk stool.

Tools Used: Saw, plane and screw driver.

Directions: Saw out the stock. Square up the top, the side pieces and the bottom. Lay out the bevel on the top and plane it to the line. Lay out the ends and cut to the proper shape. Bring pieces together and fasten with screws. Sandpaper until smooth. As many of these stools can be used in any dairy barn as there are persons milking. Boxes, up-turned pails, and other temporary things

are unhandy, and a stool can be made with very little labor and expense.

20—Camp Stool

Material: Oak as follows: four pieces 21 inches by 1 1/2 inches by 7/8 inch; four pieces 16 1/2 inches by 1 inch by 1 inch.

Tools Used: Plane, saw, wood file, sandpaper and brace and bit.

Directions: Square up all pieces as given in the drawing. Bore holes in the side pieces. Round up the cross pieces, using the plane. Bring the parts together and fasten them securely. After sandpapering the stool it should be shellacked, using a brush or a cloth. A piece of canvas or common grain sack may be cut to the desired size and sewed around the cross pieces. A few camp stools

on the porch or on the lawn will give enough extra comfort to pay for the work of making them. Many boys plan an outing in the summer. These stools are collapsible and may be packed away with other camp utensils, or they may be made to come apart, the "take down" kind, and carried in the knapsack. Or carry the canvas and make the stool.

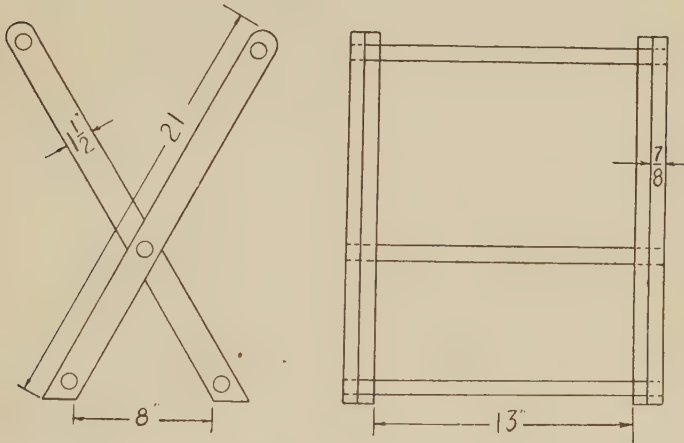


Figure 117. Camp stool.

21—Another Toothbrush Holder

Material: Oak as follows: one piece 8 inches by $4\frac{1}{2}$ inches by $\frac{1}{2}$ inch; one piece 8 inches by $1\frac{1}{2}$ inches by $1\frac{1}{2}$ inches.

Tools Used: Saw, plane, dividers, bevel, sandpaper and brace and bit.

Directions: Lay out the back and cut to the proper shape. Cut the holder to shape, using the drawing as the guide. Fasten the pieces together securely. Sandpaper until smooth and rub on a stain. As will be noticed, this is a more difficult model than Number 8, and more durable.

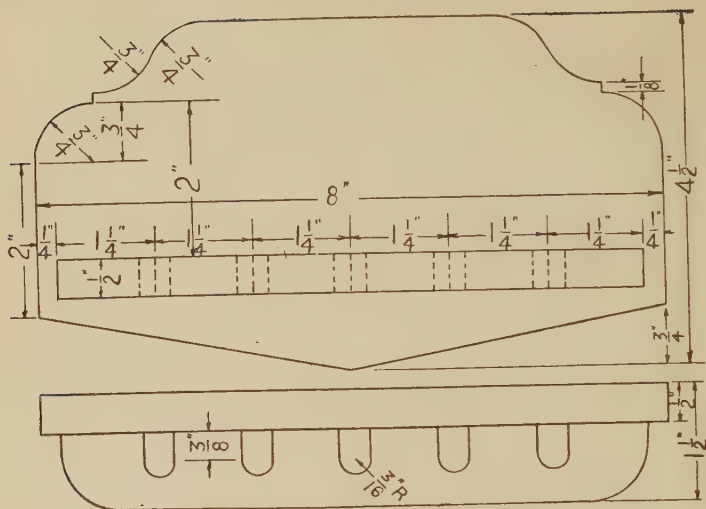


Figure 118. Another toothbrush holder.

22—Tub Stand

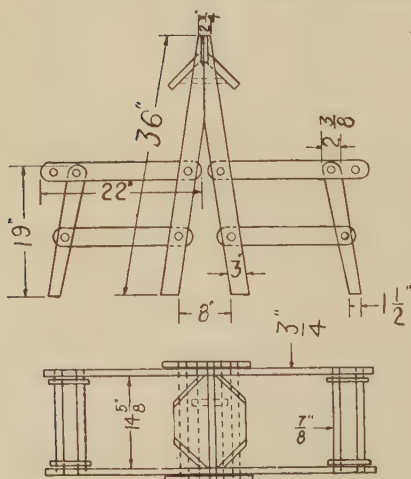


Figure 119. Tub stand.

Material: Oak as follows: six pieces 22 inches by $2\frac{1}{2}$ inches by $\frac{3}{4}$ inch; one piece $17\frac{1}{2}$ inches by 4 inches by $\frac{3}{4}$ inch; ten pieces $16\frac{1}{2}$ inches by 1 inch by 1 inch; one piece 16 inches by 5 inches by $\frac{3}{4}$ inch; two pieces 36 inches by $2\frac{1}{2}$ inches by $\frac{3}{4}$ inch.

Tools Used: Saw, plane and brace and bit.

Directions: Study the drawing carefully. Square up all the pieces and cut them to the proper size. Work each piece to shape. Plane the cross pieces until they are round. Make them smooth with the wood file and sandpaper. Fasten the pieces together firmly. Finish with a coat or two of shellac. This is one of the most useful things that could be made for the kitchen. The rack can be folded up and put away when not in use. There is room for two tubs, and the wringer is fastened to the top of the stand. While it is more difficult to make than the other exercises given, it is not at all impossible for some older boy. It would also make a good home project.

HOME PROJECTS IN MANUAL TRAINING

In many country schools there are boys in the middle 'teens or older, who would be glad to do some manual training at home, if they had the opportunity. Older brothers or father may be able to assist. The working drawings and directions for a few very useful farm projects are here given. They should suggest others. These have all been done by farm boys attending our associated schools, and can be done by any bright, energetic young man.

A workshop should be provided on every farm. Even if it must be in a corner of some other building, have a shop. It should contain a bench sufficiently large for a man's convenience. A list of tools similar to those given above for the rural schools will be needed. A grindstone, run by power, of course, on a modern farm, and such materials as will be needed for ordinary repairs on the place should be systematically arranged. And these are not all. A portable forge, with the necessary tools for operating it, will pay for itself several times in one year on some farms. It is a waste of time and money to take an implement to town

that might be repaired in the home shop. Every farm boy should learn how to make a weld that will hold, and how to make the simple repairs needed. Rainy days and odd times without suitable work have more to do with making a boy dissatisfied with the farm than lack of picnics and other good times. One of the most interesting places to a boy is the blacksmith shop. A soldering outfit should also be there, as it will be needed in some of the repairs.

Cement work is now very practicable on the farm. This can be learned by any of the older boys. Sidewalks, barn floors, drinking troughs, hitching posts, and even building blocks can all be made very cheaply. In some sections cement posts are taking the place of wooden ones. If soft wood, as poplar, grows on the farm, posts from this may be made and treated so that they will last almost as long as a cedar post. This process is cheaper than cement, as it can be done for a few cents a post. See the outline for the booklet on "Wood Preservatives and Substitutes," Chapter XXI.

The three projects suggested for home work can easily be done, as all of them are successfully being done in some schools, by "short course" students from the farms.

Chicken Coop

Material: Pine as follows:

4 pieces 24 feet long by 12 inches wide by $\frac{3}{4}$ inch.

2 pieces 34 inches long by $1\frac{1}{2}$ inches wide by $\frac{1}{2}$ inch.

2 pieces 21 inches long by $1\frac{1}{2}$ inches wide by $\frac{1}{2}$ inch.

2 pieces 17 inches long by $1\frac{1}{2}$ inches wide by $\frac{1}{2}$ inch.

2 pieces 10 inches long by $1\frac{1}{2}$ inches wide by $\frac{1}{2}$ inch.

Tools Used: Plane, saw, hammer, square, brace and bit.

Directions: See drawing. Join the two sides together. Nail sides in V shape. Put on slats, front and back. Paint.

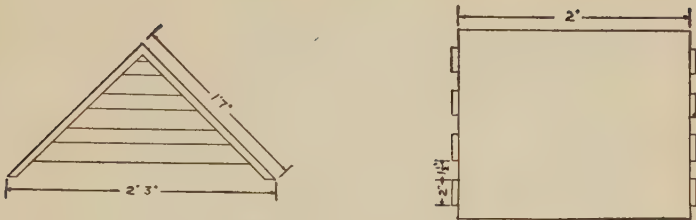


Figure 120. Chicken coop.

Wagon Box

Materials:

2 pieces 10 feet 6 inches by 12 inches by $\frac{3}{4}$ inch—pine.

2 pieces 3 feet by 12 inches by $\frac{3}{4}$ inch—pine.

2 pieces 3 feet 7 inches by 4 inches by 2 inches—oak.

2 pieces 3 feet 3 inches by 4 inches by 2 inches—oak.

4 pieces 10 feet 6 inches by 12 inches by $\frac{3}{4}$ inch—pine.

Iron work: Braces and top irons.

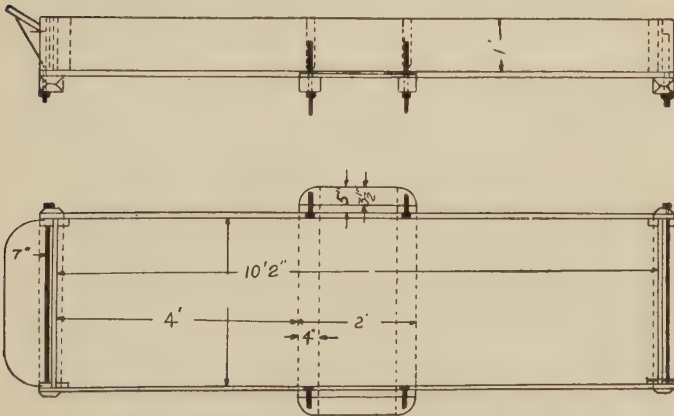


Figure 121. Wagon box.

Tools Used: Plane, saw, brace and bit, screw driver, hammer and square.

Directions: See drawing. Make bottom braces first. Then cut out sides; make bottom; make end gates; assemble. Put on iron work. Paint.

Stock Rack

Materials: 2 pieces 10 feet by 8 inches by 2 inches--pine.

8 pieces 10 feet by 4 inches by 1 inch--pine.

10 pieces 4 feet 3 inches by 4 inches by 2 inch--pine.

8 pieces 3 feet by 4 inches by 1 inch--pine.

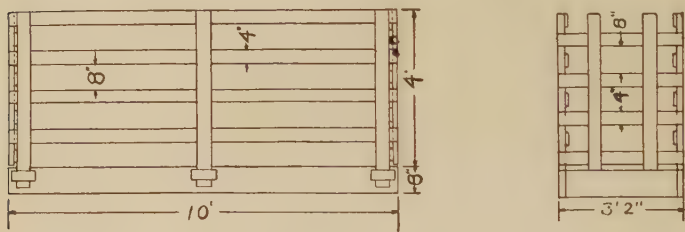


Figure 122. Stock rack.

Tools Used: Plane, saw, square, brace and bit, screw driver, wrench.

Directions: See drawing. Plane and cut the boards to size. Make end gates; assemble. Paint.

CHAPTER XXI

AGRICULTURE AND AGRICULTURAL BOOKLETS

It is entirely practicable to teach the elements of agriculture in the rural schools. A few suitable textbooks have been published for this work, but it is a good plan to supplement the work of the textbook by excursions, talks, and

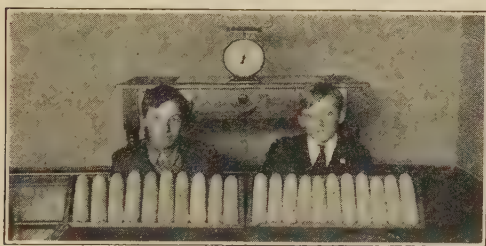


Figure 123. Two prize winners in the state contest and samples of their corn. Their average yield was over one hundred and ten bushels per acre. The ear on the scale weighs just a pound.

booklets in connection with the language work. Encourage the students to have home gardens and, if possible, give prizes for the exhibits in the fall. The school can well afford to furnish

vegetable and flower seeds to stimulate interest. Many counties and states now have contests in corn and other products, and rural school students especially should be encouraged to enter these contests.

Agricultural talks by the teacher to the entire school should be given frequently. Students should be made familiar with all the common grains, grasses, seeds, flowers, trees, vegetables, weeds, insects, and farm animals. Make collections of grains and grasses in the fall and have them for study during the winter. Select seed corn during "Seed Corn Week." Make window boxes and plant cabbage and tomato seeds early in the spring. Make germi-

nation boxes and "rag dolls" for testing seed corn and other seed. Learn the use of the common garden tools and farm implements. Make a social survey of the school district and locate farms, silos, creamery, dairy herds, etc. Bring a sample of the top and subsoil from each farm, or as many farms as convenient. Put these samples in small glass bottles for study. Get samples of clay, sand, loam, humus and fertilizers. Study the different soils derived from a mixture of these. Study the relation of moisture to crops. Show by simple experiments capillarity, solubility and osmosis, and explain how plants get their food by these means. Study the breeds of horses, cattle, hogs and sheep found in the community. Make a school collection of injurious and beneficial insects and be able to discuss each and tell methods of getting rid of the injurious kinds. Learn the bad weeds of the district. Make a collection of them and tell how to eradicate them. Get two or three dozen "pill bottles" at the drug store. Collect grain and weed seeds in the fall, dry them, put them into the bottles, and label neatly. Study these and the pressed collection during the winter. Make a special study of potatoes during the fall, when they are being dug. Bring as many varieties as you can get for comparison and study. Bake a few of each, and boil some for the hot lunches and test their eating qualities.

Permanent school exhibits in agricultural products should be made. The above list of topics will suggest others. The work discussed and field work done may be written up in the booklets. A few topics should be chosen for the year and these outlines carefully worked out.

Agricultural booklets are the common means of studying agriculture in the rural schools. These are written as language work, on good paper with pen and ink, and dis-

cuss an outline of some phase of agriculture. Clippings from magazines, catalogs, or original drawings in ink or water color, are used to illustrate the booklets. Cover paper, or common drawing paper tinted may be used as covers for the booklets. A great number of suitable topics might be suggested for this work, but each school should select a few that are best suited to its own community.

Suggestive topics for agricultural booklet work are as follows: Corn, Small Grains, Noxious Weeds, the Vegetable Garden, Potatoes, the Legumes, Alfalfa and Its Uses, the Fiber Crops of the United States, Grass and Forage Crops, Sugar Beets, Soils and Fertilizers, Seed Testing for Purity and Germination, Injurious and Beneficial Insects, Rotation of Crops, Drainage, The Need of Modern Methods in Farming, Dry Farming and Irrigation.

The outlines that follow are to be worked out by the students in booklet form. Reference material will be found in the school library, at home, and, above all, in the fields. Work them out as fully as you can and illustrate the booklets with pictures and original drawings. Only the best writing and language the student is capable of using should be accepted in this work, as it is English work as well as agriculture.

AGRICULTURAL OUTLINES

CORN

Early History—

- In the United States—Indian corn.
- In your state—Development of varieties.
- In your locality—Earliest growers.

Importance as a Crop—

- Where grown—Countries and states.
- Yields per acre—National, state, local.
- Comparison with other crops.

Kinds of Corn—

- Pod corn—now only a curiosity.

- Pop corn—Where grown, uses.
- Sweet corn—Where grown, canning.
- Flint—Where grown—varieties.
- Dent—Where grown—varieties.

Cultivation—

- Soil—
 - Fertility—Rotation of crops.
 - Drainage—Necessary to success.
 - Physical conditions.
- Preparation of Seed Bed—
 - Plowing—Fall plowing best.
 - Discing—In the spring.

Harrowing—Before and after planting.

Manuring—Before plowing, top dressing.

Planting—

By hand—Hand planter, hoe.

Check row—Horse planter, advantage.

Drill—How drilled, advantages.

Time to plant locally.

Summer Tillage—

Need of—

Eradication of weeds.

Conservation of moisture.

Depth—Shallow vs. deep.

Frequency—After every rain.

Diseases and Pests—

Smut—Cause, eradication, dangers.

Animals—Gophers, crows, blackbirds.

Insects—Cutworm, wireworm, corn

root louse, white grub, chinch bug

army worm, stalk borer, grass-

hopper.

Method of dealing with pests.

Quantity—Amount needed for ten acres.

Commercial purposes—Prevailing prices.

Storing—

Temporary drying—Where, time.

Permanent storing—Free from moisture.

Patent devices.

Homemade devices.

Corn Judging—

Without score card.

With score card.

Seed Testing—

Testers—Patent, homemade.

Individual ear—Advantages.

Shelled corn—Disadvantages.

Seed Grading—

How done—Machinery.

Why done—Butts and tips.

Corn Breeding—

Improvement of quality—Better corn.

Improvement of quantity—More corn.



Figure 124. Gathering seed corn at the school farm and stringing for drying.

Harvesting—

Silage—When cut, how stored.

Bundle corn—When cut, machinery.

Husking—When, how, storing.

Seed Selection—

From seed plot—Advantages.

From field—Best stalks and ears.

From crib—Disadvantages.

Time—"Seed Corn Week."

Improvement of maturity—Earlier corn.

Corn crossing—New varieties.

Uses of Corn—

Stock Food—

Grain—Ground or fed whole.

Bundle corn—Roughage and grain.

Silage—Protein and fattening qualities.



Figure 125. A tray of typical seed corn. A few kernels have been taken from each ear for the germination test.

Courtesy of The Farmer

Hogging off—Advantages.
Commercial preparations—Gluten meal, etc.
Human food—
Cornmeal—How used.
Corn starch—Uses.

Hominy—How made, uses.
Corn syrup—How made, uses.
Corn sugar—How made, uses.
Special breakfast foods—Corn flakes, etc.
Other Uses—Paper, alcohol, armor wadding, etc.

REFERENCES

Corn by Bowman & Crossley, Field Crops by Wilson & Warburton, Corn Crops by Montgomery, and Forage and Fiber Crops of America by Hunt are excellent works of reference.

ROTATION OF CROPS

Need of Rotation—

Exhaustion of soils—
In New England—Character of soil.

In Virginia—Tobacco raising.

In the West—Grain growing.

To decompose fertilizers—

How rotation helps.

Decomposition can take place only with heat, air and moisture. These conditions should exist while the plant is growing. Otherwise plant food is lost by washing

To increase yields—

Crops actually larger under crop rotation.

To maintain soil fertility—

Some European soils, cropped for more than a thousand years under rotation, better than virgin soil.

Theories of Rotation—

Toxic—Poisons produced by successive crops.

Chemical—Plant food unlocked, bacteria.

Economic—Maintains vegetable matter.

Classes of Rotation—

Grain crops—Kinds, advantages—

Food and sale crops.

Little vegetable matter left in soil.

Grass crops—Kinds, advantages.

Live stock—Pasturage.

Vegetable matter—Large roots, bacteria.

Cultivated crops—Kinds, advantages.

Economy in time—Summer work.

Favorable conditions for decomposition.

Effect on soils—How beneficial.

Principles of Rotation—

Short time—

For building up worn out soils.

Three-year rotation—Grain, grass, cultivated.

Long time—

For permanent use.

Five to ten years—Advantages.

Fertilizers used—

Suggestive Rotations—

Dressing of manure once during rotation.

Commercial fertilizers as needed.

Relation to fields—

Same number of fields as years of rotation.

Fields uniform size as nearly as possible.

Enables constant supply of live stock.

Three Year Plan—

Year	Field A	Field B	Field C
1915	Grain	Clover	Corn
1916	Clover	Corn	Grain
1917	Corn	Grain	Clover

Four Year Plan—

Year	Field A	Field B	Field C	Field D
1915	Grain	Meadow	Pasture	Corn
1916	Meadow	Pasture	Corn	Grain
1917	Pasture	Corn	Grain	Meadow
1918	Corn	Grain	Meadow	Pasture

Five Year Plan—

Year	Field A	Field B	Field C	Field D	Field E
1915	Grain	Grain	Meadow	Pasture	Corn
1916	Grain	Meadow	Pasture	Corn	Grain
1917	Meadow	Pasture	Corn	Grain	Grain
1918	Pasture	Corn	Grain	Grain	Meadow
1919	Corn	Grain	Grain	Meadow	Pasture

Note: Find out what rotations are used in the community and encourage wider use of them.

REFERENCES

A new work entitled, Field Management and Crop Rotation by E. C. Parker is a most thorough treatment of this subject and an invaluable book for reference.

COMMON WEEDS

Definition of a Weed—Any plant out of place.

Classification—

Annual weeds—

Characteristics—Ripen seeds one year only.

Eradication—Destroy before seed forms.

Biennial weeds—

Characteristics—Ripen seeds the second year.

Eradication—Prevent seeding.

Perennial weeds—

Characteristics—Ripen seeds every year.

Eradication—Destroy seed and root stem.

Economic Conditions—

Injurious effects—

Rob crops of moisture.

Take nourishment from crops.

Sometimes poisonous to live stock.

Money loss—Millions of dollars annually.

Beneficial effects—

Fertilizers—Plowed under as "green manure."

Shade ground—Prevents baking of soil.

Rotation—Sometimes compel rotations of crop.

A Dozen "Worst Weeds"

Russian thistle—

Annual—Small seeds, tumble weed.

Where found—Flat prairie country.

How destroyed—Cultivation, crop rotation.

Pigeon grass—

Other names—Foxtail, barn grass.

Annual—Small seeds, large head.

Where found—Gardens, grain fields.

How destroyed—Cultivation

Ragweed—

Annual—Three kinds, small seeds.

Especially obnoxious—Hay fever.

Where found—Roadsides, waste places.

How destroyed—Mow roads and corners.

Cocklebur—

Annual—Seeds in clusters.

Where found—Grain fields.

How destroyed—Cultivation, pasturing.

Mustard—

Annual—Tall plant, yellow flower.

Where found—Grain fields.

How destroyed—Crop rotation.

Wild cat—

Annual—Ripens early and shells out.

Where found—Grain fields.

How destroyed—Crop rotation.

Burdock—

Biennial—Bushy plant, seed in burs.

Where found—Roadside, pastures.

How destroyed—Digging up, plowing.

Bull thistle—

Biennial—Bushy plant, red flower.

Where found—Pastures, waste places.

How destroyed—Crop rotation.

Dandelion—

Perennial—Small plant, yellow flower.

Where found—Everywhere, lawns in particular.

How destroyed—Dig out, sheep pasture.

Canada thistle—

Perennial—One of our worst weeds.

Where found—Grain fields, roadsides.

How destroyed—Cultivation, crop rotation.

Plantain—

Perennial—Small plant, seeds in spikes.

Where found—Lawns, pastures.

How destroyed—Dig up, sheep pasture.

Quack grass—

Perennial—Perhaps our worst weed.

Where found—Grain fields, pastures, roads.

How destroyed—Crop rotations, smothering summer fallow.

REFERENCES

Much help may be obtained from *Weeds and How to Eradicate Them* by Shaw, *Quack Grass Eradication* by Crane, *Weeds of the Farm and Garden* by Pammel, and *Manual of Weeds by Georgia*.

INSECTS THAT I KNOW

General Description—

Parts—Head, thorax, abdomen

Legs—All have three pairs.

Breathing spiracles—Tubes on abdomen.

Stages of Growth. (Metamorphoses)—

First stage—Egg

Second stage—Larva.

Third stage—Pupa, or cocoon.

Fourth stage—Imago, or adult.

Incomplete metamorphoses—Egg, nymph, adult.

Groups of Insects—

Biting—

Mouth parts fitted for biting.

Example—Grasshopper.

How destroyed—Can be poisoned.

Sprays—Paris Green, lead acetate.

Paris green.....1 pound.

Quicklime.....1 pound.

Water.....200 gallons.

Sucking—

Mouth parts fitted for sucking juices.

Example—Plant louse.

How destroyed—Suffocation, cannot poison.

Sprays—Soap emulsion, tobacco, tea.

Soap.....½ pound.

Soft Water.....1 gallon.

Kerosene.....2 gallons.

Preying insects—

Those that feed upon other insects.

Example Ladybugs.

How protect—Beneficial, not injurious.

Economic Conditions—

Money losses—Millions of dollars annually.

Mechanical devices for destroying.

Unsanitary—Disease carriers.

Annoying pests—Mosquitos, cockroaches, etc.

Straight-winged Insects—Orthoptera—

Grasshopper—

Changes—Incomplete, biting insect.

Economy—Injurious, grain and grass.

Cockroach—

Changes—Incomplete, biting insect.

Economy—Injurious, infest houses.

Cricket—

Changes—Incomplete, biting insect.

Economy—Injurious, fields, homes.

Sheath-winged Insects—Coleoptera (Beetles)—

Potato beetle—

Changes—Complete, biting insect.

Economy—Injurious, damage enormous.

Buffalo beetle—

Changes—Complete, biting insect.

Economy—Injurious, carpets, clothing.

Ladybug (Not a bug at all)—

Economy—Beneficial, destroys insects.

Boll weevil—

Economy—Injurious, eats cotton boll

Plum curculio—

Changes—Complete, biting insect.

Economy—Injurious, plums, cherries, apples.

Half-winged Insects—Hemiptera—(Bugs)

Plant lice—

Changes—Irregular, sucking insects.

Economy—Injurious, plant juices.

Scale bugs (San Jose' and others)—

Changes—Complete, sucking insects.

Economy—Injurious, orchards, trees.

Squash bug—

Changes—Complete, sucking insect.

Economy—Injurious, attacks all vines.

Chinch bug—

Changes—Complete, sucking insect.

Economy—Injurious, grains, grasses, corn.

Bedbug—

Economy—Injurious, houses, hotels.

Destroy with corrosive sublimate, in alcohol and turpentine.

Two-winged Insects—Diptera—

Typhoid fly—Common house fly.

Changes—Complete, biting insect.

Economy—Disease carriers, scavengers.

Hessian fly—

Changes—Complete, "flax seed" stage.

Economy—Injurious—Wheat fields.

Fleas and mosquitos—

Changes—Complete, biting insects.

Economy—Great human pests.

Botfly—

Changes—Complete, parasite.

Economy—Horse and cattle pest.

**Scaly-winged Insects—L e p i d o p -
tera—**

Distinguished between moths and butterflies.

Codling moth—

Changes—Complete, biting insects.

Economy—Injurious, apples.

Cotton moth (Army Worm)—

Changes—Complete, biting insect.

Economy—Great damage to cotton and oats.

Cabbage butterfly—

Changes—Complete, biting insect.

Economy—Destroys cabbages.

How destroy—Cover cabbage with flour.

**Membrane-winged Insects.—Hy-
menoptera—**

Bees—

Varieties—Life history.

Changes—Complete, biting insects,

Economy—Beneficial, honey, wax, etc.

Ichneumon flies.—

Changes—Complete, parasite.

Economy—Beneficial, destroy great numbers of insects annually

REFERENCES

References for agricultural booklets may be obtained from the Department of Agriculture, Washington, D. C., and from your state agricultural college. Get the list of publications from these institutions and order bulletins on the special topics desired. Most of these bulletins are free. More complete books for text or reference purposes should be obtained of the publishers.

Insects Injurious to Staples Crops by Sanderson, Insects Injurious to Vegetables by Chittenden, Manual of Fruit Insects by Slingerland & Crosby, Injurious Insects—How to Recognize and Control Them by O'Kane, Our Insect Friends and Enemies by Smith, and Spraying Crops—Why, When and How to Weed.

CHAPTER XXII

HORTICULTURE BOOKLETS

“Horticulture” comes from two Latin words meaning the cultivation of a garden. We can, therefore, properly place vegetable gardening, fruit raising, and landscape gardening under the head of horticulture. There are many interesting topics in this group that can be made subjects for booklet work. The following list will suggest others:

Strawberries, Bush Fruits, Apples, Fruit Bearing Trees, Citrus Fruits, the Vineyard, the Stone Fruits, the Orchard, Landscape Gardening, the Vegetable Garden, Potatoes, and Market Gardening.

STRAWBERRIES

Where Grown—

Almost every country in the world.
More widely grown than any other fruit.

Origin—

South America—Chile, most varieties.
Wild strawberry—A few varieties.
Alpine strawberry—Native of Europe.
Everbearing variety—Not important.

Location and Soil—

Northern slope—Retarded in spring, no frost.
Sandy loam—Rich, well drained.
Warm soil—Retain moisture.
Sod—Likely to contain cutworms, etc.
Cultivated soil—Corn or potato land good.

Preparation of Soil—

Fertilizer—Heavy manuring, or commercial.
Plowing—Shallow, fall.
Disking—Thoroughly worked, spring.
Seed bed—Loose on top, compact below.

Propagation—

By seed—
Used in obtaining new varieties.
By division of old plants—
Used to propagate individual plants.
By runners—
The common way.
How done.

Plants and Planting—

One year old plants—White, fibrous roots—
Used for spring planting.
Spring plants—White roots—
Used for fall planting.
Old plants—Dark roots—
Not good for planting.
Time for planting—
Spring—For northern climates.
Fall—For southern climates.
Heeling-in—
When dry, or when soil is not ready.
Open bunches—Place in furrow, pack.
Methods of planting—
Hill method—For small patches, hoe.
Matted rows—For large patches, cultivate.

Set rows four feet apart, two feet apart in the row. Use corn marker for large patch.

Planting—

Two persons—Man with spade, boy plants.

Trowel—For small garden patches.
Staminate and pistillate varieties, hardy.

Care During Summer—

Cultivation—Horse, between rows—
Shallow—Free from weeds, moisture.

Thin plants if necessary, cut runners.

Train runners with the rows.

Pick off all blossoms.

Winter Protection—

Materials—Straw, hay, etc.

Time—Cover after ground is frozen.

Depth—Cover three or more inches.

Remove—After danger of frost in spring.

Place straw between rows, conserve moisture.

Renewing Beds—

After one crop—Most growers plow up.

Second year crop—If necessary—
Mow off and burn.

Plow furrow each side, leave one foot wide.

Manure, cultivate.

New plants, grown by fall.

Picking and Marketing—

For home use—Pick ripe, wash.

For market—Rather green, boxes—
Sort berries for market.

Prices—Local, shipping.

Strawberry Diseases and Insects—

Rust on leaves—

Spray with Bordeaux mixture.

Rake up leaves and burn.

White grub and cutworm—

Do not plant on sod.

Rake and burn after picking.

Leaf roller—

Spray with arsenate of lead.

REFERENCES

Popular Fruit Growing by Green, The A B C of Strawberry Culture by Terry, and Strawberry Culturist by Fuller.

THE ORCHARD

Every home should have an orchard large enough to at least furnish the family with all the fruit needed. There are enough hardy varieties of orchard fruits so that even in the northern climates there should be no lack of fruit. A small outlay and a little care will bring the desired results.

Location of the Orchard—

Northern exposure—Usually best—

Prevents freezing in spring.

Prevents injuring from hot winds in summer.

Near body of water—

More even temperature.

Drainage—

Air drainage—

High spots—Cold air in valleys.

Rolling lands.

Soil drainage—

Natural—High and rolling lands.

Tile—Between rows if necessary.

Home Orchard—

Plant where most convenient.

Not always ideal location.

The Soil—

Hardpan subsoil—To be avoided.

Gravel and sand—Not good.

Heavy clay loam—Too slow.

Light clay loam—Best.

Hardwood soil—Usually good.

Preparation—

Cultivated land best.

Fertilizers—Rotted manure, green manure.

Plowing—Fall, very deep.

Disking and harrowing—Spring.

Orchard Stock—

From reliable nurseries.

Get stock early.

Heeling in—Cover roots in trenches.

Size of trees—One to three years old.

Grafted stock—Root, scion.

Head the tree low.

Know varieties best suited to locality.

Varieties for Northwest—

Apples—Duchess, Hiberna, Patten's Greening, Okabena, Wealthy, Malinda, Anisim, Iowa Beauty, Milwaukee, Jewell's Winter.

Crabs and hybrids—Whitney, Florence, Strawberry, Minnesota, Transcendent.

Plums and hybrids—DeSoto, Forest Garden, Wolf, Wyant, Stoddard, Terry.



Figure 126. A well kept young apple orchard.

Courtesy of The Farmer.

Planting—

Distance between trees—Twenty-five to thirty feet.

Arrangement—Some definite system—

Triangular system—More trees to acre.

Square plan—For small orchards.

Straight rows—Beauty, convenience.

Planting board—Accuracy.

Trim roots—About eight inches long.

Depth—Plant deeper than in nursery.

Firm soil around tree—Two-inch mulch on top.

Moisture—Do not water unless very dry.

Training the Tree—

Cut top to within two feet.

Prune each spring.

Low, well formed top desired.

Cultivation—

To secure rapid growth.

Use disk and harrow.

Protection—

Do not cultivate too close.

Wrappers protect from sun scald.

Soil mounted around crowns in fall.

Snow sheds—Prevent breaking branches.

Washes—Protect from insects.
 Spraying—Keeps trees healthy.
Marketing Fruit—

Home markets—Keeping apples.
 Selling on the trees.
 Picking and packing.

REFERENCES

Popular Fruit Growing by Green, Productive Orchardng by Sears, and Principles of Fruit Growing by Bailey.

THE VEGETABLE GARDEN

Whether in town or country every home should have its vegetable garden. No spot pays so well, and the pleasure one derives from contact with the garden on a pleasant spring morning or summer evening is more than its money value. Without a garden, fewer vegetables are used, as they must be purchased, and the cost of living is increased to the extent that more high priced meat and groceries must take their place. It is a good plan to leave part of the garden work to the women and children, but not all of it. The preparation of the soil, laying out the garden so that machinery can be used, and part of the work should be done by the men. The garden should contain a good variety of vegetables for use from early spring until late fall. A few simple tools kept sharp, and a garden drill for sowing and cultivating, if the patch is large, are necessary for good results.

Location of Vegetable Garden—

Near the house—Saves time.
 Fenced in—Or fence chicken yard.

Classes of Gardens—

Market garden—
 Planning—Grow for demands of market.
 Marketing—Delivery, packing, transportation.

Home Garden—
 May be part of market garden.
 Small kitchen garden.

Arrangement—

Must be more or less permanent—
 Perennials—Together, cultivation.
 Plan the garden—On paper during winter.
 Rows far apart—Use horse for cultivating.

Similar plants should be together.
 Neatness and beauty—Straight rows symmetrical.

Soil—

Sandy loam—Clay subsoil—
 Rich soil—Barnyard manure well rotted.

Commercial fertilizers—Nitrate of soda, etc.

Southern slope—

Warmer in early spring.

Best for vines, ripening tomatoes, melons, etc.

Preparation for planting—

Plowed in fall—Kill weeds and insects.

Disked and harrowed in spring.

Free from clods, sticks, stones, etc.

Hotbeds and Cold Frames—

Hotbed started early—

Size—As wide as sash used and any length.

Location—South side of building or fence.

Manure—Horse manure, depth, a foot or more.

Glass—Use ordinary storm sash.

Ventilation—After seventy-five or eighty degrees.

Watering—Each morning.

Plants—Early plants for transplanting.

Cold frame—

Use—For transplanting from hotbed.

Transplant to garden as desired.

Cover only when in danger of frost.

Planting Garden—

From cold frames—

For early use.

Main crop after danger of frost.

Hardy vegetables—

As early as ground can be worked.

Onions, carrots, peas, etc.

Main crop—Later than hardy varieties.

Vines—After danger of all frost is past.

For fall use—Late plantings.

Methods of plantings—

Hand planting for small amounts.

Garden drill for large garden.

Firming—When ground is dry.

Cultivation—

Hoeing and hand cultivators—

For small gardens.

After large cultivators in market gardens.

Horse cultivators—

More effective—Save time.

Time of cultivation—

Often enough to kill weeds.

After rain to conserve moisture.

From early spring to late fall.

Friends and Foes—

Garden friends—

Animals—Toads, frogs, snakes, some birds.

Insects—Ladybug, bees, ants, Ichneumen fly.

Garden foes—

Animals—Chickens, gophers, birds, etc.

Insects—Squash bug, potato beetle, cabbage butterfly, cutworm, etc.

Plant diseases—Potato scab and rot, etc.

Weeds—Consume nourishment and moisture.

Harvesting—

As needed during growing season.

In the fall—

Care in gathering.

Selecting, grading, and storing.

Suggestive Vegetables to Grow—

Tubers—Underground stems. (Potatoes)—

Early varieties—Early Rose, Early Ohio, Cobbler, Eureka Extra,

Norton Beauty, and Triumph.

Late varieties—Burbank, Carmen, Rural, Walter Raleigh, and Pingree.

Roots—Root of plant developed for food—

Require heavy rich soil.

Kinds—Carrots, parsnips, turnips, beets, rutabagas, radish, sweet potatoes, and salsify.

Bulbs—

Onions—Several varieties, sandy loam.

Seed vegetables—

Peas and beans.

Leaf plants—

Kinds—Cabbage, cauliflower, celery, lettuce, spinach, kohlrabi, Swiss chard, cress and kale.

Special care needed for many of these.

Vines—

Planting time—Late, danger of frost.

Kinds—Watermelon, muskmelon, squash, pumpkin, citron and cucumber.

Herbs—

Used for flavoring.

Kinds—Sage, mint, summer and winter savory, lavender, anise, dill, and thyme.

Corn—

Sweet—For table use and canning.

Pop—For winter use.

Fruit vegetables—

Grown for the fruit of the plant.

Kinds—Tomatoes, ground cherries, etc.

Perennials—

Remain in garden from year to year.

Kinds—Rhubarb, horse radish, asparagus, etc.



Courtesy of The Farmer.

Figure 127. Preparing the soil for a school garden.



Courtesy of The Farmer.

Figure 128. Caring for the school garden during the summer.

REFERENCES

Good books for the library are Green's Vegetable Gardening, Gardening for Pleasure by Henderson, Success in Market-Gardening by Rawson, Productive Vegetable Growing by Lloyd, and Garden Farming by Corbett.

CHAPTER XXIII

ANIMAL HUSBANDRY BOOKLETS

Animals are always interesting to children. The boy or girl who has not had a pet lamb, chicken, duck, colt or some other animal, has missed a great deal. The work in this branch of general agriculture in the elementary school is more difficult to teach, because it is hard to study the animals at first hand. The booklet plan will help solve this problem, however, and, if the students will observe the animals at home, and the school take a few field excursions to supplement the outlines suggested, the study may become delightful.

The production of live stock is one of the greatest industries in the country. With the present demand far in excess of the supply in nearly all branches of live stock, it would seem that something besides high prices is necessary to stimulate still greater interest in stock raising. The great ranges for feeding sheep and cattle are practically gone. The bulk of the live stock for the markets must, therefore, be raised on the farms. Since stock raising is always more profitable than grain farming, and the production of a reasonable amount of live stock makes possible a well balanced rotation plan, animal husbandry would seem to be a very important subject for the rural schools, and to provide an excellent opportunity to do practical work in arithmetic, in computing rations, etc., and to get practice in composition in the booklet work.

A great number of topics present themselves as suitable for animal husbandry booklets. Among them are the following: Poultry for Pleasure and Profit, Farm Animals, The Care of Animals, Veterinary Science on the Farm,

Swine, Sheep Raising, Horses, the Dairy, Creameries and Cheese Factories, Animal Diseases, Beef Raising, Silos and Silage, How to Feed Animals and Bee Culture.

POULTRY OUTLINE

The Poultry Industry—

Distribution—All parts of the world.

Value—Over two thirds of a billion dollars a year in United States.

Profitable, if properly handled.

Poultry Includes—

Chickens—Most important.

Turkeys—Bring highest prices.

Ducks and geese—Foragers.

Other fowls—Not important commercially.

Origin of Domesticated Poultry—

Fowls—Wild jungle fowl of India.

Turkeys—From wild turkey of America.

Ducks and geese—Native to America and Europe.

Housing of Poultry—

Selection of site—Dry ground, southern exposure.

Furnishings movable—Cleaned easily.

Roosts comfortable—Two by fours, no cracks.

Curtains—For cold weather.

Ventilation—Muslin windows no draughts.

Floor—Wooden better than cement.

Number together—Not over fifty.

Special roosts—For ducks and geese.

Sanitation—Clean, whitewashed, no vermin.

Nests—Partly hidden, comfortable.

Breeding Poultry—

Pure bred stock most profitable.

Common stock improved—

By buying standard bred fowls.

By buying pure bred eggs.

By selecting the best stock for mating.

Care of eggs for hatching—Must be fresh.

Hatching the eggs—

With hens—In small flocks.

Incubators—Used for large flocks.

Feeds and Feeding—

Grain feeds—

Corn—One third of feed for growing stock, nearly all corn for fattening.

Wheat—Screenings, use as scratch feed.

Oats—Sprouted, good for laying hens.

Barley—Good for fattening.

Buckwheat and millet—Mixed with other feed.

Cracked mixtures—Good for scratch feed.

Green feeds—For chickens not on range.

Sprouted grains—Oats, barley, etc.

Clover, alfalfa.

Roots—Mangels, turnips, beets, and cabbage.

Grit and shells—

Lime—For laying hens.

Coarse sand and gravel.

Ground and crushed rock.

Oyster and other shells.

Meat feeds—

Beef scraps, bits from the table, etc.

Wet and dry feeding—

Wet mash at noon—Corn, oats, bran, shorts.

Dry mash in self-feeding hopper, same mixture.

Balanced diet—Work out a balanced ration.

Diseases of Poultry—

Diseases—

Gapes—Worms in the windpipe.

Cholera—Germ disease, contagious.

Roup—Cold appears, in winter and spring.

Pests—

Mites—Appear in warm weather, filthy house.

Lice—Body and head.

Remedies and preventives—

Disinfectant in water and feed.

Patent remedies applied with feather.

Kerosene on roosts and heads of birds.

Fumigate with sulphur.

Boxes for dust baths.

Eggs—

Gathered daily and kept clean.

Market often in warm weather.

Laws for protecting the public.

Records—Get sheets from experiment station.

Sell only uniform size.

Marketing—

Eggs—See above.

Poultry—

Alive—Shipped in crates.

Dressed—Local and city markets.

Breeds best adapted.

Standard Bred Poultry—

Term means pure bred stock.

American Poultry Association determines standards.

Poultry shows and exhibitions.

Meat Breeds—

Brahmas—Light and dark—

Weight—Nine to twelve pounds.

Meat rather coarse.

Cochins—Black, white and partridge.

Weight—Nearly as large as Brahmas.

Feathered legs.

Langshans—Black and white—

Smaller and more active than the others.

Egg Breeds—

Leghorn—Several varieties, single and rose comb—

Native of Italy.

Active—Great layers, hard to fatten.

Minorca—Black, white, single and rose comb—

Native island of Minorca.

Large eggs.

Hamburgs—Several varieties—

Active—Small eggs.

Native of Germany.

Andalusians—Dove color—

Not so common as the others.

General Purpose Breeds—

Plymouth Rock—A great favorite—Originated in Massachusetts.

Barred, white, buff, partridge, silver penciled.

All single combs.

Wyandotte—A little smaller than the Rocks—

American breed.

White, silver laced, golden, buff, black, partridge, and silver penciled.

Orpington—Large, plump chicken—English bred.

White, black, buff, jubilee.

Rhode Island Red—Meat excellent flavor—

Cross from all known varieties.

Rose and single comb varieties.

Other breeds for general purpose—

Java—Black and mottled.

Dominique—Resemble Plymouth Rock.



Figure 129. White Wyandotte cockerel.



Figure 130. White Wyandotte pullet.

Dorking—White, silver gray, colored.

Houdan—French breed, crest on head.

Cornish Indian—Meat excellent flavor.

Fancy Breeds—

Ornamental, not practical.

Kinds—Game, Polish, Sultan, Silky, Bantam.

Ducks—

Pekin—Perhaps the most popular—Originated in China.

Good for meat and eggs.

Rouen—Resembles the wild mallard. Originated in England. General purpose.

Aylesbury—Larger than Pekin—Originated in England. Meat variety chiefly.

Indian Runner—Small, erect posture—

Called Leghorn of the duck family. Great egg producer.

Black Cayuga—Dark color—Originated in America.

General purpose.

Muscovy—Hiss, rather than quack—

Originated in South America.

Do not resemble other breeds.

Meat cannot be equaled in flavor.

Male very large, female small.

Fine layers, and good setters.

Geese—

Toulouse—Very large, gray, have paunch.

Embsen—White, develop early.

African—Finer grained flesh than others.

Chinese—Small, not profitable for farm.

Turkeys—

Origin—All from American wild turkey.

Breeds—

Bronze—Largest, most popular.

Narragansett—Gray, quiet.

White Holland—Lays well, quiet.

Others—Buff, Slate, Black, Bourbon Red.

REFERENCES

Progressive Poultry Culture by Brigham, Productive Poultry Husbandry by Lewis, Principles and Practice of Poultry Culture by Robinson, Farm Poultry by Watson, and Poultry by Lippincott.

CATTLE

Origin—

Most of our cattle are developed from English breeds.

From cross with American buffalo.

Beef Breeds—

General features—

Block type, ability to take on flesh.

Low, broad, deep.

Shorthorn or Durham—

English origin.

Best known beef type.

Hereford—Called "white faces"—

English origin, large, over a ton.

Becoming very popular.

Aberdeen Angus—Hornless—

Scotch origin.

Large proportion of meat when dressed.

Red Poll—Medium size, harmless—English origin.

General purpose.

Galloway—Hardy breed, hornless—

Scotch origin.

Hide used for robes.

Others—Devon Brown, Swiss.

Raising beef animals—

Breeding, housing, pasturing, fattening.

Marketing—Local and city markets.

The packing houses—

Location, products, by-products.

Comparison of prices with live stock.

Dairy Breeds—

General features—

Angular in form.

Large udder.

Large capacity for turning feed into milk.



Figure 131. The dairy type. A pure bred Guernsey cow.

Courtesy of The Farmer.

The Jersey—Most popular in United States—

Native to Island of Jersey.
Rich milk, not large quantity.

Guernsey—Very popular in some sections—

Native to Island of Guernsey.
Milk yellow, more than Jerseys.

Holstein-Friesians—

Originated in Holland.
Large flow of milk—Good cheese milk.

Ayrshire—

Scotch origin.
Much milk, not rich in butter fat.

Other Breeds—Dutch Belted, Kerry, French Canadian.

Care of dairy herd—

Breeding, housing, pasturing.
Balanced rations for dairy cattle.
Herd and individual record.

Dairy products—

Milk, cream, butter, cheese, etc.
High butter fat records.
Laws regulating dairy products.

Machinery used—

Milking machines—Not in general use.

Cream separators—Keeping clean.
Apparatus for weighing and recording milk.

Babcock tester—To determine butter fat.

"Scrubs"—

These are mixed breeds and no breeds.

Are not profitable for milk or beef.

Diseases of Cattle—

Tuberculosis—

Poorly ventilated barns.

Tuberculin test—How given, results.

Transmitted in milk.

Anthrax—

Spores of germs very resistant.

Other diseases—

Blackleg, lockjaw, pneumonia.

Preventives—Sprays, fresh air—

Disinfectants—Bichloride of mercury, chloride of lime, formaldehyde, carbolic acid, cresol.

How to disinfect stables.

Value of Cattle—

To the farm—

Produce meat and dairy products.
Produce cheap fertilizer.
Permit a rotation plan to be followed.

To the nation—

Dairy products are second only to corn.

Beef cattle rank next to dairy products.

REFERENCES

Beginnings in Animal Husbandry by Plumb, Types and Breeds of Farm Animals by Plumb, and Dairy Cattle and Milk Production by Eckles.

HOGS

Importance—

Relation to corn and grain growing.
Value in the United States.

Lard Type—

General features—
Capable of taking on fat.
Thick body, short head, short legs.
Poland China—
Originated in Ohio.
Black, with white on face, tail and feet.
Berkshire—
English origin.
Erect ears, snout upturned.
Chester White—
Originated in Pennsylvania.

Drooping ears—Rather slow maturing.

Duroc Jersey—

American origin.

Red color, ears droop forward.

Bacon Type—

General features—

Produced for side meat or bacon.

Long body and legs, long snout.

Large Yorkshire—

English origin.

White color, ears erect, large size.

Tamworth—

English bred.

Red color, long deep body, long snout.



Figure 132. The lard type. A pure bred Poland China. Courtesy of The Farmer.

Other breeds—

The Thin Rind, or Hampshire.
The Razor-backs of the South.

Breeding—

Select a breed and build it up.
By selection.
By new blood.

Housing—

Hog houses—How built.
Keeping clean.

Care of young pigs.

Feeds and Feeding—

For growing.
For fattening.
Balanced rations.

Diseases of Hogs—

Cholera—Causes, remedies, preventives.

Other diseases.

Curing Pork—

At the packing houses.

Products and by-products.

On the farm—

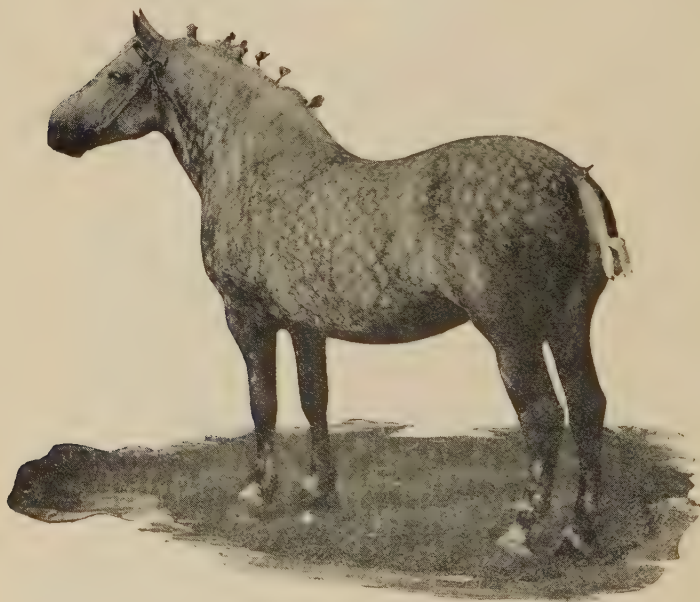
Salted pork.

Dried pork.

Smoked hams and bacons.

REFERENCES

Beginnings in Animal Husbandry by Plumb, Types and Breeds of Farm Animals by Plumb, Productive Swine Husbandry by Day, and Swine Husbandry by Coburn.

HORSES

Courtesy of The Farmer

Figure 133. The draft type. A pure bred Percheron.

History of the Horse—**Prehistoric horse—**

Twelve different stages shown by fossils from five toes to solipeds. Driven from early home in woods by other animals, and life on plains developed the single toe of the hoof.

Original horse only the size of the fox.

Historic horse—

First mentioned in 1712 B. C. when Joseph exchanged horses for corn. Xenophon described a war horse. First domesticated in Egypt and Arabia.

American horses all imported. The "Broncho" escaped from early Spanish explorers.

Uses—

Probably first used in war by the ancients.

Later used in chariot races by Greeks and Romans.

Valuable for farm work.

Hauling loads and vehicles.

Saddle and driving horses.

Types—

Draft: Suited to farm work and heavy hauling—

Percheron—Most popular in America, native of France; gray and black in color; docile; active, and has excellent feet.

Clydesdale—Draft horse of Scotland and popular in America; color usually bay or brown, rapid walkers; "feathery" legs.

Belgian—Bred in Belgium; broad back; short legs; small feet; chestnut bay and brown color.

English Shire—Popular in England; short legs, large feet; slow walker; bay or brown with white lower legs and forehead.

Suffolk—Originated in Suffolk county, England; common farm horse of that country; chestnut color; small ears; powerful body.

French draft—Larger than Percheron, but not so popular.

Coach: Stylish and lighter than draft horses.

Hackney—Blocky form; gait attractive; several colors; "high stepper;" most popular carriage horse.

German—Not well established in

America; long neck and legs; general purpose horse.

French—Long stride; good action, various colors; popular in France.

Cleveland Bay—English origin; largest of type; bay in color; poor action.

Roadster: Small head and pointed ears; speed—

American Trotter or Standard Bred—Most noted families are Hambletonians, Clays, Morgans, Pilots and Hals American Breed.

Saddlers: Saddle or harness horse—Arabian—Original breed; speed type.

Thoroughbred—English saddle horse.

American—From Arabian and thoroughbreds.

Pony: Small horses of both draft and speed types—

Shetland—Shetland Islands; gentle for children.

Welsh—Wales.

Indian Ponies—Western U. S.

Mustang Broncho—Western plains.

Hybrids—

Mules—Not a true breed; cross between a donkey and horse, hardy; long lived; fine draft animals.

Care of Horses—

Proper shelter.—

Kind of stables.

Cost.

Feeding—

In summer and winter.

Balanced rations.

Training—

At what age?

How "broken."

REFERENCES

Beginnings in Animal Husbandry by Plumb, Types and Breeds of Farm Animals by Plumb, Productive Horse Husbandry by Gay.

BIRDS THAT I KNOW

Classes of Birds—

Land birds.

Water birds.

Game birds.

Birds of prey.

Migration—

Birds that do not migrate.

Birds that go South for the winter.

Make a table of migration with dates

Bird Protection—

National and state laws.

Dangers from cold and wet.

Cats and other animals.

Bird houses.

Bird Study—

From books.
In the field.
Field glasses.
Notebook.

Injurious Birds; Destroy—

English Sparrow—
Feeds on grains almost entirely.
Common in every community.
Kingfisher—
Blue-gray in color; loud, harsh call.
Around ponds, lakes and rivers.
Feeds on fish, frogs, lizards.
American crow—
The common black crow.
More injurious than beneficial.

Beneficial Birds: Protect—

House wren—
Brown color; small.
Feeds wholly upon insects.
Song sparrow—
Most abundant of all our birds;
pleasing song.
Larger than English sparrow; red-
dish brown back.
Feeds on insects, grass and weed
seeds.
Orchard oriole—
Male, chestnut and black; female
yellowish and gray; $7\frac{1}{2}$ inches
long.
Feeds on insects chiefly; about 15%
fruit and grain.
Bank swallow—
Lives in holes in banks of earth;
smallest of swallows.
Feeds wholly on insects.
Barn swallow—
Builds nests in barns and other
buildings.
Most graceful and beautiful of
swallows.
Feeds on insects almost entirely.
Blue jay—
Very beautiful; large; noisy.
Feeds on insects, mice, weed seed
and grain.
Cardinal—
Male, red; female, gray.
Feeds on insects and weed seed.
Red-winged blackbird—
Male, black with red shoulders; fe-
males, brownish black.

Feeds on cutworms, grasshoppers
plant lice, grain, fruit and small
animals.

Red-headed woodpecker—

Adults have entire head and breast
red.

Feeds on injurious insects, wild
fruit, weed seed, birds' eggs.

Killdeer—

Easily recognized by its call.
Feeds entirely upon injurious
insects.

Quail or "Bob White"—

The common game bird of America.
Feeds on weed seed, injurious in-
sects, fruits and grain.

Dove—

Useful for food, but should be
protected.

Feeds on weed seed chiefly, and
grains left on the ground in the
fields.

Screech owl—

Very useful; recognized from call.
Feeds on rats, English sparrows,
cutworms, caterpillars, crickets,
etc.

Barn owl—

Found around buildings.
Feeds on mice, rats, rabbits, etc.

Buzzard—

Beneficial to public health.
Feeds almost entirely upon carrion.

Humming-bird—

Very small, not much larger than
bumble bee.

Feeds on gnats, ants, parasitic
wasps, as well as nectar from
trees and flowers.

Cowbird—

Male, greenish black with brown
head; female, dull gray. Lays
eggs in other bird nests and
leaves young to be cared for.

Found among cattle, hence the
name. Feeds on gnats, flies and
other insects.

Meadow lark—

Beautiful songster; brown back,
yellow underneath.

Found perched on post or other
object.

Feeds on insects chiefly.

REFERENCES

Our Common Birds and How to Know Them by Grant, Our Native Birds
by Lange, Bird Neighbors by Blanchan, Bird Guide by Reed, and Field Book of
American Wild Birds and Their Music by Matthews.

CHAPTER XXIV

HOME ECONOMICS BOOKLETS

If the sewing and hot lunch work is carried out as suggested in the chapters on those subjects, the present outlines for booklets for the language classes will supplement that work. If the school is not doing sewing or serving, then the home economic booklets are all the more necessary. Reference for this work can be obtained free of charge from the state and national Departments of Agriculture and from library books.

A suggestive list of topics suitable for booklets is given: Household Management, Home Sanitation, Home Conveniences, Flies and Their Control, The Kitchen Garden, Home Decoration, Home Furnishings, Contagious and Infectious Diseases, Human Foods, Canning without Powders, Bread Baking, Egg Cookery, The Fireless Cooker, Paper Bag Cookery, Pure Milk, Dairy Products, Garment Making, The Clothes Moth, How Needles and Pins Are Made, Button Manufactures, How Cloth Is Made, How Common Salt Is Made, Curing Meats.

FLIES AND THEIR CONTROL

Classification—

Diptera, or two-winged.

Biting and lapping insects.

House Fly, or Typhoid Fly—

Home—

In filthy places.

In barns and houses.

Disease carrier—

Typhoid fever.

Tuberculosis.

Dysentery.

Sources of disease germs—

Outhouses.

Dead animals, dump grounds.

Barnyard manure.

Garbage cans.

Infected persons.

Spitting on walks, floors, etc.

Life history of fly—

Adult lives over winter in warm place.

Pupa is protected over winter.

Emerges first warm days of spring.

Female lays about one hundred eggs.

Maggots hatch in eight hours.

Maggots full grown in six days.

Pupa stage three to five days.

Full grown fly in about twelve days.

Rate of increase enormous—

Figure the increase of one fly for season.

Checked by natural means.
 Control of flies—
 Screens—For doors, windows, out-houses.
 Allow no barnyard manure to collect.
 Remove all garbage piles.
 Have garbage pail with cover.
 Have septic tank—Do away with outhouses.
 Poison with formalin in milk and water mixture.
 Protect all food.
 Fly contests—Children collecting for prizes.
 Flytraps—
 The Minnesota trap—Agricultural Experiment Station.
 Homemade traps—Costly w cents.
 Quite effective.

Bait important—Bread and milk, meat.
Stock Flies—
 Varieties—
 Horn flies—Cluster around horns of cattle.
 Stable flies—Resemble house fly, but bite.
 The botfly—Maggot attached to stomach of horse.
 Feeding habits—
 Blood of animals.
 Nectar of flowers.
 Preventives—
 Currying horses and cattle.
 Solution with strong odor.
 Darkened stables.
 Sprays.
 Ointments and kerosene.

REFERENCES

Bulletins and books on insects, sanitation, etc.

HOUSEHOLD FRIENDS AND FOES—(Bacteria)

Dust—

Where Found—
 City homes—Street dust.
 Country homes—Road and field dust.
 Ships at sea—Coal and meteoric dust.
 Everywhere—Atmosphere.
 Necessity of Dust—
 No life without dust.
 No light without dust particles.
 Movements of Dust—
 Winds.
 Air currents as we move through it.
 Composition of Dust—
 Particles of wood and coal.
 Bits of clothing, house furnishings, etc.
 Process of wearing away in all things.
 Home of numerous germs.
 Dust "Gardens"—
 For experimenting with dust.
 Moist bread in warm place—Keep covered.
 Moist meat kept warm—Cover with glass—Watch.
 Keep milk in warm place—Watch changes.

Place piece of meat in covered dish
 —Boil half hour, keep out air, no change. Why?
 Canned goods do not spoil—Why?
Bacteria Dust Plants—
 Where Found—
 Kinds—
 Rod shaped—Bacilli.
 Ball shaped—Cocci.
 Spiral shaped—Spirilla.
 Classification as plants—
 Because they can live on mineral matter.
 Animals cannot do this.
 Life history—
 Multiply very rapidly—Millions in twenty-four hours.
 Reproduce by simple division.
 Food—Milk, meat juices, fruit, sweets, animals, man.
 Mostly parasites—Live on prepared food.
 Digest their food and throw off waste products.
 Cause changes in food products.
 Cause diseases—Waste products are poisonous.
 Size of bacteria—
 Never seen with naked eye.

- Some require very powerful microscopes.
 Great number make up for small size.
Power of movement—
 Some are stationary.
 Jerky movements—Slow motion.
 Whip-like projections—Cilia.
Spore state—
 Some bacteria can remain dormant for years.
 This is called the "spore stage."
 Difficult to kill such species.
 Others cannot do this.
 These are easily destroyed.
How destroyed—
 Most forms by boiling or baking.
 By direct sunlight and fresh air.
 By medical treatment.
Economy in nature—
 Some are very useful.
 Some are very harmful.
- Yeast Dust Plants—**
Size and structure—
 Much larger than bacteria.
 Single cell—Living plant—B u d -ding.
Requirements for growth—
 Moist warm place.
 Temperature from 70° to 90° F.
 Killed with heat at about 130° F.
 Can stand more cold than heat.
Economy in nature—
 Used in bread making.
 The CO₂ given off raises the bread.
- Used in breweries.
- Mold Dust Plants—**
Life history—
 Spores—Correspond to seeds of higher plants.
 Present in dust at all times.
 Requirements for growth.
 Economy in nature—
 Useful in making Limburger cheese, etc.
 Harmful—Cause ringworm, thrush, liver spots.
- How Dust Plants Are Useful—**
 Bacteria as scavengers.
 Bacteria in the soil—Nitrogen.
 In commercial world—
 Dyeing industries.
 Flax manufactures.
 Curing and tanning.
 In producing flavors.
 Butter making.
 Cheese making.
 Vinegar production.
- Injurious Dust Plants—**
 Bacteria cause diseases—
 Typhoid fever.
 Tuberculosis.
 Diphtheria.
 Other diseases.
 Infections or contagious diseases—
 Explain how caused.
 The "spoiling" of food stuffs.
 Preventives—
 Preserving foods.
 Pasteurization.

REFERENCES

Bacteria, Yeasts and Molds by Conn, Household Bacteriology by Buchanan, Bacteria in relation to Country Life by Lipman, and Dust and Its Dangers by Pruden.

BREAD BAKING

This is one of the things every girl should learn to do well. Experience alone will not produce good bread bakers. The scientific principles must be understood. No experiment should be more interesting than that of learning to bake bread. If there are no facilities at school, do the work at home and tell how you did it in the booklet on "Bread Baking." Local and state contests should be encouraged.

Minnesota has just completed a bread baking contest with over eighty counties represented and more than sixteen hundred contestants. Complete directions are given in Volume III, Number 7, *Rural School Agriculture*, published by the Minnesota Extension Division. The outline here given is based upon the suggestions given in that publication.



Figure 134. Ready for state contest. These were all prize winners in competition with over sixteen hundred entries.

Origin and History of Bread Making—

- Early unleavened bread.
- Leavened bread known by ancients.

Kinds of Bread—

- Made from what sources.
- Methods of making.
- In different countries.
- Baker's bread—
 - Sometimes cheap flour, alum, etc.
- Homemade bread—
 - Pure and wholesome.

Essential Factors in Bread Making—

- Flour—
 - Bread is light because wheat contains gluten.

No other grain contains gluten of desirable quality.

White flour mixed with rye to make it light.

Yeast—

Dust plant found in the air.

Used commercially.

Gives off CO_2 (carbon dioxide) which raises the bread.

Compressed yeast—Very active, will not keep.

Dry yeast—Cakes soaked, bread sponge.

Liquid yeast—Homemade, "starter," potatoes.

Liquids—

Milk—Better crust usually.

Water—Often used.

Potato water—From white potatoes.

Buttermilk—Sometimes an unpleasant flavor.

Other Ingredients—

Sugar—

Food for yeast plant—Hastens rising.

Two teaspoonfuls to a loaf of bread.

Salt—

Used for flavor.

One teaspoonful to a loaf.

Shortening, or fat—

Makes bread more tender.

One or two teaspoonfuls to a loaf.

Best Results Obtained—

By having good materials.

Constant care.

Correct temperature—

75° F. to 95° F.

Easily killed if above 95° F.

Rises too slowly if below 75° F.

Need of thermometer.

The Short Process—

Time: four to six hours.

Compressed yeast used.

Proportions for one loaf—

Milk or water, one cupful. Flour.

3½ cupfuls. Compressed yeast

½ cake. Salt, 1 teaspoonful.

Sugar, 2 teaspoonfuls. Fat, 1

teaspoonful.

Milk or water heated to 95° F.

Put warm liquid over yeast cake to

soften.

Balance of liquid over other ingredients.

Add yeast and flour—Mix on board. Place in well oiled pan in water 100° F.

Bread should rise until double its bulk.

Knead from three to five minutes—Distribute gas.

Shape loaf and put in oiled pan.

Bake from forty-five minutes to one hour.

The Long Process—

Set sponge at night—Keep warm.

Proportions for one loaf—

Milk or water, 1 cupful. Flour,

3½ cupfuls. Dry yeast, ¼

cake. Salt, 1 teaspoonful. Su-

gar, 2 teaspoonfuls. Fat, 1 tea-

spoonful.

Proceed as in short method.

Homemade Yeast—

Boiling potato water, one cupful.

Flour, 4 teaspoonfuls. Sugar, 1

teaspoonful. Yeast, 1 cake.

Mix flour with boiling potato water.

Add one fourth of a cup of mashed

potato, and sugar.

Add yeast cake and one half of a cup

of water at 75° F.

Let stand twenty-four hours—Stir.

Score Card for Judging—

Total hundred points—

General appearance—Twenty

points.

Flavor—Odor and taste, thirty-

five points.

Lightness—Yeast killed, fifteen

points.

Crumb—Texture, color, grain,

thirty points.

REFERENCES

Domestic Science: Principles and Application by Bailey, Chemistry of Bread Making by Grant, and all standard works on this subject.

CHAPTER XXV

OTHER BOOKLETS FOR RURAL SCHOOLS

There are other topics of sufficient interest for booklet work that do not come under any of the preceding chapters. A few are suggested:

Good Roads, Cement and Its Uses on the Farm, Preservatives for Wood, Tools and Their Uses, Drainage, Taxes, The Resources of Our State, Imports and Exports of the United States, The American School System, The Modern Home, Farming as a Business, Patent Medicines, The Value of Farmers' Clubs, Consolidation of Rural Schools, Industrial Contests, Our Trees and Woods, Railroads, and Influence of War on Agriculture.

WOOD PRESERVATIVES AND SUBSTITUTES

Causes of Decay of Wood—

Weathering—Water, wind, etc.

Fungi—Small plant organisms.

Increase in Cost of Wood—

Lumber—

Scarcity in many parts of country.

Some kinds can no longer be obtained.

Posts—

Scarcity of timber.

Great demand—Fencing, railroads, telephone.

More Profitable to Preserve Wood—

Than to buy new material.

Than to use other materials than wood.

Paints—

How made—White lead, oil, coloring.

For houses—Outside.

For other buildings—Cheaper grade.

Inside paints—How different.

Cost—Always cheaper to paint than not to.

Varnishes—

How made—Shellac, wood filler, etc.

For carriages, automobiles, etc.

Indoor varnishes.

For furniture.

For floors.

Oil and Wax—

For floors.

For furniture.

Other uses.

Preservatives for Posts—

Cause of rot at base—

Dampness.

Soil bacteria.

Substitutes for wooden posts—

Iron—Too expensive.

Cement—Limited to soil without alkali.

Durability of posts depends upon—

Kind of wood.

Rate of growth.

Age of tree.

How seasoned.

Prevention of rot—

Exclude air and moisture.

Poison wood and kill fungi.

Old methods—

Charring—Good, but takes time.

Whitewash—Not durable.

Paint—Ground moisture softens it.

Coal tar—Applied with brush.

- Poisoning post at ground—Dangerous.
 Other methods—
 Mineral salts—Zinc chloride, copper sulphate, bichloride of mercury. Objections to these are that they are washed out by rains.
 Heavy oils—Coal tar and petroleum. These are best.
The Creosote Preservative—
 The pressure process—
 Used in railroad ties, timbers, etc.
 Requires expensive apparatus.
 The non-pressure—Open tank—
 Small portable tank.
 Plant not very expensive.
 Dry, soft wood posts used.
 Cost of treatment—Seven to ten cents.
 Posts last twenty to thirty years.
 Cheapest kind of post in long run.
 Makes cottonwood as effective as red cedar.

GOOD ROADS

History of Good Road Movement—

- In Europe—
 Famous roads in history.
 In the United States.
 Bicycles and automobiles—Influences.

Good Roads Cheaper than Poor—

- Poor roads always need repairs.
 Comparison of loads hauled over each.

Road Construction—

- Under direction of competent engineer—
 The "pathmaster" not ordinarily qualified.
 Has made special study of this work.
 Laid out as straight as possible—
 In the middle West usually one mile apart.
 The road bed—
 Well graded and rounded.
 No sods left in road bed.
 Ditches at sides for drainage.
 Proper grade established.
 Surfacing—
 With top soil in sandy regions.
 With sand or gravel in clay soils.
 Gravel or crushed rock—Best.

Care of Roads—

- Road overseers.
 Use of split log drag.
 Ordinary "road work" not well done.
 Contracting for up-keep a better plan.

Classes of Roads—

- National highways—
 The Cumberland road.
 In national parks.
 State roads—
 State Highway Commission.
 Jurisdiction and duties.
 County roads—
 County commissioners.
 Jurisdiction and duties.
 Township roads—
 Supervisors.
 Jurisdiction and duties.

Road Maintenance—

- State aid for state roads—
 How is work done?
 What constitutes a state road?
 County road and bridge fund—
 Direct tax in each county.
 Levied by commissioners usually.
 Where and how spent.
 Town road and bridge fund—
 Direct tax in each township.
 How administered.

REFERENCES

- Get pamphlets on data from State Highway Commission.

DRAINAGE

Improvements—

- Temporary—
 Fencing.
 Buildings.
 More permanent—
 Drainage.

Irrigation.

Drainage Cheaper than More Land—

- Drained land is the richest land.
 Drained for twenty to thirty dollars an acre.

Intensive, not extensive, farming pays.

Open Ditches—

Necessary where large areas are low.
Land not wasted when used for these—
Adjoining land more productive.
All can be cultivated.

Planning Drainage System—

Land surveyed.
Maps platted.
The lay of the land.

Construction—

The "fall"—
The water runs by gravity.
Proper depth and width.
Competent drainage engineer—
It doesn't pay to "guess" about tile.

Kinds of Drainage—

Open ditches—
Remove surface water.
Cheaply constructed.
Use plow and scraper.

Rains will show where needed.

Underdrainage—

Permanent, and gives best results.
More expensive—Cost of tile.
Stones sometimes used.
Tiling best.
How the tile works.
Size of tile—Depends upon surface conditions, grade, and depth.

Tools Used—

The level and stakes—
Running lines and fixing grades.
Skeleton spade, long handled shovel, solid spade, tile scoop, tile hook.

Laying the Tile—

Begin at outlet and lay up stream.
Care of laterals—Connections.
Blinding—Covering, to hold in place.
Protection for outlet—Screen, box.
Filling the trenches.

Conclusion.—

Examples of profitable drainage.

REFERENCES

Agricultural Engineering by Davidson, Farm Drainage by French, Engineering for Land Drainage by Elliott, and Practical Farm Drainage by Elliott.

CHAPTER XXVI

OUTSIDE ACTIVITIES

There is a feeling that the school should become more and more a real community institution. It is no longer a question of what the school can do for the farmers' boys and girls only, but what it can do for the farmers and the farmers' wives themselves. Already the state university, through its great and efficient extension division, is making the entire state its campus, and the industrial high schools are making their influence felt in their communities. The inevitable step remains—the reorganization of the rural school with the same end in view. Pessimists will remonstrate and loudly proclaim that the day of fads has not yet passed, as they have always done; progress will be blocked here as it has been with the university and high schools referred to; but, nevertheless, the day is near at hand when the American Rural School will come into its own. Already many such schools are the life and inspiration of their environments.

Closer union of school, home and farm, is the slogan



Figure 135. Studying pure bred swine on a nearby farm.

of the progressive school to-day. This idea is being successfully carried out in many places. Superintendent Barnes of the St. Cloud, Minnesota, schools, in a prelude to a plan for giving credit for work done outside of school, says: "The purpose is to unite the home and the school, to connect the work of the school with things going forward outside, and to encourage the children to spend part of their spare time at some useful occupation—in a measure to direct their work along the line of practical, every-day, homely tasks—to give all a chance and to train them for work and service, not merely the acquisition of knowledge, that they may the better fit into actual conditions about them—to prepare for complete living—to make the watchword industrial, social and home efficiency."

Activities outside the schoolroom, but under the leadership and general direction of the school, may be divided into two classes—those for the children, and those for their parents. Of those suitable for the former may be mentioned the home credit plan, home gardens, corn contests, tomato contests. It is important that the prize element of the contest work be made secondary, and the enjoyment of learning to improve what has been done the real object. School activities carried to the parents may include the organization of farmers' clubs, women's clubs, institutes held at the rural schools, cow testing associations, the tuberculin test for cattle, hog vaccination, demonstration work on farms, teaching use of records and accounts in the home and on the farm, pure seed campaigns, drainage planned and supervised, etc. The question probably arises, "How can the rural school with, perhaps, a woman teacher do these things?" She cannot do them all, although the one-room school can do much more than it has been doing; but the rural school of the immediate future is the associated

and consolidated school. Such schools, with their special teachers, can do all this work and more, as the opportunity presents itself.

The home credit plan is popular in many places. In addition to the regular studies which are required for promotion, the school gives credit for certain work at home. Sometimes three hundred points are required for promotion with credit and five hundred for promotion with honor. The home work is elective on the part of the student, but mere "book students" are not passed with "credit" and "honor," unless their physical conditions incapacitate them for any of the outside work. A great variety of tasks and duties are given credit in different schools, each counting a definite number of points. A few are taken at random from one school, showing the number of points for each. Most of the tasks can be done by both boys and girls. The time of service for each is six weeks.

Points	Tasks and Duties
1. 10.	Sawing, splitting and carrying in wood.
2. 10.	Building the fires or tending the furnace.
3. 10.	Tending horse or cow and other barn chores.
4. 5.	Caring for poultry and gathering eggs.
5. 5.	Delivering milk or carrying water.
6. 10.	Mowing the lawn.
7. 10.	Making a bird house and feeding the birds.
8. 10.	Learning to swim.
9. 5.	Bathing at least twice a week.
10. 5.	Retiring before nine o'clock.
11. 5.	Getting up without being called.
12. 15.	Preparing one meal daily for the family.
13. 5.	Getting smaller children ready for school.
14. 10.	On time at school. Clean, hair brushed, teeth brushed.
15. 10.	Practicing music lesson thirty minutes daily.
16. 10.	Keeping savings account with growing deposit.
17. 5.	Making beds.
18. 10.	Making and baking bread, biscuits, or cake, exhibits.
19. 5.	Setting table and serving.
20. 5.	Doing mending.

School gardens have been referred to elsewhere. Plans for the gardens should be discussed in school and at home and definite space and vegetables to be grown determined. Directions for preparing the soil, fertilizing, planting, and caring for the garden during the summer can be given. The students should be encouraged to keep records of the work spent on the gardens and of the value of the products. Seeds may be furnished by the school or at home, as de-



Figure 136. School garden products exhibited at the fall contest.

sired. A "harvest festival" held at the school during the early fall will be the crowning event of the garden work. Judges from the special departments of the high schools can be secured. Prizes should be provided for the different entries. Flowers should not be overlooked in the garden work, nor in the exhibit. A local program and refreshments served by the girls of the school will increase the interest.

Corn contests are not difficult to manage in states where the extension division of the university conducts a state contest in corn growing. This has been one of the most popular contests in Minnesota. The local school should get the bulletins available and work up the interest. There are always boys in the district who can be interested. Farmers themselves should be glad to co-operate in this



Figure 137. Checking up the boy's corn yield.

work and to contribute liberally toward the prizes, as corn contests have greatly increased the corn yields the last few years. The winners in this year's Minnesota state contest were all over the hundred bushels of dry corn mark, with the common run above seventy-five bushels. When we remember that the average yield for the United States is under thirty bushels, it shows the possibilities of this work. Land that will produce a hundred bushels of dry corn to the acre annually in rotation is worth five hundred dollars an acre. Do our farmer friends realize that their

boys and girls through these contests directed by the schools are doubling their land values in many communities?

Tomato contests for the girls can be conducted in a similar manner to the corn contests. There is not always the market for tomatoes that there is for the more staple products; hence the financial end is not so attractive. A state-wide canning contest is now being planned in several states, under the joint direction of the state and federal extension divisions. This is an excellent project for the future home-makers, as modern scientific methods of preserving vegetables and fruits will be learned. The use of harmful canning powders, and other unsanitary methods will be discontinued when girls learn the modern processes.

The bread baking contests referred to in Chapter XXIV can be conducted as well in a rural school as anywhere else, as part of the bread at least is to be baked at home. It can all be baked there, if desired. In case the school is equipped with a hot lunch outfit, including a kerosene stove and oven, part of the contest work can be done in the school under the direct supervision of the teacher. Compressed yeast should be used at the school, however, as it would be difficult to keep a sponge at the proper temperature over night. One difficulty with the home work is that an over-anxious mother sometimes gets her "finger in the dough" when it should be purely the girl's affair. The local flour should be used, if possible. A country mill usually produces good flour. It is true to some extent that one must be used to the flour to get the best results, but get used to your local mill's product, and usually as good results can be obtained as from any other source. The author acknowledges that he has had to convert more than one home-maker and teacher to this doctrine, but

what his power of persuasion failed to do, the local flour in a sack bearing the name of the favorite brand accomplished.

Of the school activities carried to the community the first mentioned, the organization of farmers' clubs, will be discussed at length in the next chapter.

Institutes held at the school may be participated in by the leading men and women of the community, as well as a specialist from an industrial high school or the county agent and field workers from the state extension division. A series of such meetings, planned jointly by the school and committee from the farmers' clubs, may be held from time to time during the year. The state Farmers' Institutes' Corps is often available for such service, as that organization believes in carrying the gospel of good farming and home making to the farmers and home makers. Where a course is planned ahead for the year a well balanced list of topics can be discussed, and a good choice of speakers secured. In case there are no farmers' clubs there is all the more for the school to do. The institutes are often the forerunners of the club organization.

Cow testing associations have been formed in several places with excellent results. The local creameries are always glad to co-operate in an enterprise of this kind. If a man cannot be employed to make the rounds and superintend the testing, arrangements can likely be made to have it done at the creamery. In associated and consolidated schools, it is often done at the school laboratory. Many progressive farmers now have a milk scale, record sheets, and even a Babcock tester, so that the organization of an association should not be difficult. The advantages of such an organization are evident. It is hard to imagine anything less profitable about the place than a scrub cow. Testing and records will soon clear a farm of scrubs.

The tuberculin test should be better known. Shortly after one of our classes in animal husbandry had completed their demonstration lesson in tuberculosis and the application of the tuberculin test, a farmer requested that his entire herd be tested. Others followed, until one hundred and ten cattle were tested during one school year, all free of charge to the farmer. Some of those tested were condemned, and the results verified by the state authorities. It is now generally known that tuberculosis is very commonly transmitted from cows to children, and even to adults, through milk. In associated schools, where an agricultural expert is available, tests can be made and the facts determined. Until laws compel owners to have all cows tested for tuberculosis, many farmers will not pay for the services of a veterinary.

Vaccination of hogs for cholera is another important service that is being done frequently by the instructors in agriculture from industrial high schools. Occasionally this disease breaks out in violent form and causes tremendous losses. Again the schools can be of great service to the farmers.

Demonstration work in fertilizers, pure seed, alfalfa, etc., can be successfully done on the farms near the school. Our agricultural department organized twelve so-called demonstration farms for keeping records and conducting various tests. These have since been turned over to the state Extension Division as a new "route" for their work. The farmers were glad of the opportunity to have their farms put on a business basis and have records kept. After a discussion of potato raising at an institute one progressive farmer tried out what he had learned and was delighted with the returns. His statement was so candid and unique it is worth giving here. He said: "My name is Yonson.

I listen to your potato talk las' spring. I thought you tol' one great big lie. I plant potatoes my way and get one hundred fifty bushels. I plant potatoes your way and I get three hundred and seventy six bushels on same ground. Now I plant your way."

The necessity for pure seed corn and other grains is evident, if maximum crops are to be realized. Here again the school can act as leader through its teacher of agri-



figure 138. The agriculturist and manual training teacher starting for the associated schools and demonstration farms in the school rig.

culture. Farmers are naturally skeptical of "book methods" as they sometimes call the work of the high school agriculturist, but, when they once realize that these methods will "deliver the goods," they are glad to co-operate. Testing for purity and germination may be done at the school, or by farmers themselves. Taking seed corn from the crib will no longer do on an up-to-date farm. Seed corn week

is observed and the seed is carefully selected, properly stored, and accurately tested before planting. Hundred bushel yields must have the right start, and that is the seed. Other seed grain is beginning to receive the attention it should for record yields.

Drainage projects have been successfully carried out by some schools. The lines were run, the "fall" determined, and, in some cases, the tile laid by the students from the school. A consolidated school, or rural schools associated with an industrial high school, can do this to good advantage to both farmer and pupils. Nearly every district has its drainage problems. The school can help to solve them.

The county agent is an agricultural expert engaged jointly by the state and county in several states the last few years. He organizes farmers' clubs, attends institutes, gives talks and demonstrations at the schools, consults with farmers regarding crops and stock, and, in brief, is the county advisor in matters pertaining to agriculture. The plan has worked out well in most counties. An energetic, well qualified person can be of great service to the schools and the community in general.



Figure 139. Class doing field work in animal husbandry.

CHAPTER XXVII

THE SCHOOL AS A SOCIAL CENTER

One of the reasons almost invariably given by young persons for wishing to leave the farm is the lack of social opportunities. Unfortunately, for the average rural community this statement is justifiable. There is little or nothing to attend in the country, so the young men and women go to town to spend their evenings. This practice may, or may not, be bad in itself, depending upon the circumstances, but it certainly is not conducive to a wholesome respect for country life. It would seem to be the duty of every rural community to provide some form of recreation and social intercourse, and the school ought naturally to be the nucleus of this social life. Where there is a rural church, that organization should co-operate with the school in solving this serious problem.

The country often lacks efficient leadership. Here is the opportunity for the teacher. Some one must take the initiative, if anything is to be accomplished. A course in rural sociology should be required in the training of every teacher for the country schools.

An illustration of what can be done when the rural school and the country church co-operate for the social welfare has come under the observation of the author during the last few years. In this case probably the leading spirit is the local pastor, although there are so many capable young men and women, it would be unfair to give the entire credit to any one individual. The former principal of the little semi-graded school and her assistant took great interest in industrial contests, and the school has successfully defended two silver cups, until they became the permanent



Figure 140. A rural community center. The large modern church stands just beyond the schoolhouse. The pastor's residence and farm are at the right of the picture. The store and co-operative creamery complete the cluster.

property of the school. The present principal is a young man of exceptional musical ability. Cantatas and operettas flourish. Another group of young persons became interested in music. An organization has developed into a seven or eight-piece orchestra seldom equaled in any small community, and their services are in demand far beyond the little home district. An effective debating society has done good work for years. The church is commodious, seating some five or six hundred persons. A spacious basement amply provides for the culinary entertainments. This institution alternates with the school as a meeting place for the entertainments which seldom are more than two weeks apart. A prosperous farmers' club looks after the agricultural interests during the year, and the directors of the co-operative creamery have as an annual summer event, a picnic, that attracts hundreds from outside the immediate neighborhood. All these and other activities occur regularly in a typical little rural center four or five

miles from the nearest village. Its score or more of young persons attending the central high school in the village are anxious to get home at night or for the week-end events. These young folk are not clamoring for city life, nor will they choose it when they consider their life work. Progressive contentment is a great virtue.

Farmers' clubs have been organized in Minnesota by the hundreds during the last year or two, the ultimate goal being one in each school district. Several reasons might be given for having a live organization of this kind in each community, among them being the educational, social and financial benefits derived.

The educational value of farmers' clubs should not be underestimated. Topics of importance to farmers and their wives are discussed, debates are given, and musical and rhetorical programs rendered. The question box is an interesting feature of many clubs. Another plan is to have each farmer who is a leader discuss how he gets results in his particular line. In the summer when they meet at the homes the men sometimes study a growing crop, such as alfalfa, by going into the field and examining the plants and soil, while the women discuss household affairs.

The social side of the club is often regarded as the most valuable. Man is a gregarious animal and requires a certain amount of recreation and social enjoyment. The country folk are as much entitled to these pleasures as the city. Lack of initiative and organization have usually stood in the way. The farmer's club is meeting a long felt want in this respect.

As a financial enterprise the club has many inducements. Pure bred cattle, horses, hogs, and other animals are brought into the community by individuals who have agreed upon the breeds that will be raised, or by the club

itself. Farmers have learned that it pays to co-operate in these matters, and they apply the same principles to farm crops. If a buyer wants stock, corn, or potatoes, he must be able to get the same breeds and varieties in carload lots. The individual producer seldom has such quantities. If his neighbors have the same kinds, a better market is open to all.

The club gives parliamentary practice to those who otherwise would get very little of such training. The farmer's club for the country should correspond to the commercial club of the village, and it should produce just as efficient leaders and business men. Some communities already regard the club as vital to their welfare.

Clubs are organized by electing the usual officers—a president, vice president, secretary and treasurer. Several committees are desirable, as the program committee, membership, refreshment committee, etc. By-laws are drawn up and adopted. All this work is excellent training for the young. It is understood that farmers' clubs should be family affairs. That is, the entire family should be members, and attend. They should never be organized for the men only. Once a week during the winter and once in two weeks in the spring and fall will not be found too often for a live club to meet. A program of some kind should always be part of the meeting. If there is still time, games may be played before or after the refreshments. The lunches ought not to be elaborate. It can readily be seen that there is hardly any limit to the activities of such an organization. Speakers can be obtained from the nearest high schools and from the general state extension division.

Lyceum courses are not uncommon now in rural communities. It is true, it would be difficult to maintain such a course in a common one-room school. but the modern



Figure 141. Making the school a social center. One of the lyceum numbers.

consolidated school ought to have a lyceum course. One hundred season tickets at one dollar and a half, besides what would be taken in at the door for each attraction, would support a fairly good course of four or five numbers. The University of Minnesota, through its general extension division, has entered the lyceum field to furnish courses at cost and to a degree has revolutionized both the cost and the quality of lyceum attractions.

A circulating library can easily be managed either by farmers' clubs or the schools. Under the associated school plan the books from the general library of the central high school can be circulated from school to school in the country and finally returned to the central library. A consolidated school could have a similar plan, or several rural schools might form a circulating library. The advantages of such

a plan are obvious. Each school gets the benefit of all the books and magazines. In order to be a success, the teachers must first of all be enthusiastic over the plan. The books must be checked up carefully and circulated promptly from school to school. The advantage of a local circulating library over a state library is that the local books can be had free of charge, each district in the circuit purchasing a number of new books each year. In one associated district, the manual training department of the central school made neat oak cases to hold about thirty-five or forty books. They could be locked up and transferred with the books to the next school.

The community hall, either in connection with the school or as a separate building, is probably the next step in community welfare. This may be in a small village or out in the open country, depending upon local conditions. A reading room with books and magazines, a rest room, a larger room with games such as checkers, dominoes, chess, and others, should be provided. If possible, there ought also to be a larger room for athletics, basketball, indoor baseball, etc. The same building would serve for the lyceum course and home talent plays. Such things may have been visionary in the past; they are to be realities in the very near future.

Mr. E. M. Phillips in his *Manual for Consolidated Schools in Minnesota* emphasizes the necessity of making the school the social center for the community. He says, "Rural communities are in need everywhere of such organizations as will give expression to all the varied human interests which they hold in common—religious, educational, aesthetic, social, economic.

The rural school holds a splendid strategic position with reference to every one of these interests. It is intrenched

in the heart of every loyal American as identified with our national achievements. It assures our future as a great people consecrated to the cause of freedom, truth and righteousness among men. What is more natural than to make use of this existing institution as an agency to encourage those organizations which may embody the lofty ideals to be found in some degree in every community?

Bring only some of the latent organizing possibilities of the country-side into dynamic combinations of people bent upon realizing themselves through frequent meeting, exchange of experiences and agreement of purpose, and the desirability of country life would gradually and surely assert itself. The school stands ready-made for this service. School boards, principals and teachers may well co-operate in their efforts to accomplish or stimulate such organization of all rural interests. If a beginning is made, the logical sequence will reveal itself.

Contests, debates, musical training through school orchestral and band organizations, literary societies, agricultural clubs, sewing and cooking clubs—all these and others are being employed in the different schools with excellent success as a means of helping children to realize their aspirations.

A warning will not be out of place. Use any or all of these agencies for the accomplishment of something definite and educative, and so regulate the situation that a logical balance is at all times preserved between regular school requirements and these affiliated activities."

CHAPTER XXVIII

ASSOCIATION OF SCHOOLS

The "Minnesota Plan," as the Putnam Act of 1909 is sometimes called, provides for the association of rural schools with a central school for the purpose of extending the influence of the central school to the rural schools, and for the teaching of agriculture and other industrial subjects in these schools. When the law was first passed, the state High School Board was authorized to designate ten schools to maintain departments of agriculture, manual training and home economics. This plan was at first independent of association of rural schools, but the law has since been revised so that any high, graded, or consolidated rural school that measures up to the requirements laid down by the High School Board, may draw state aid under the Putnam Act, provided two or more rural schools become associated with such Central School.

Special teachers are required by law in the departments of agriculture, manual training, and home economics, of all schools under the Putnam Act. The instructors in agriculture and home economics must be college graduates in those subjects and the manual training instructors must hold a special certificate from the State Department of Education. The demand for such teachers has exceeded the supply. So rapidly have industrial subjects been introduced into the schools of many states. This demand has tended to increase the salaries not only of the special teachers but also those of other teachers in the high school and grades. The demand for trained teachers in the associated rural schools has raised salaries in those districts,

so that few pay less than fifty dollars a month and sixty or sixty-five dollars is not uncommon wages.

Instruction in the industrial subjects is free to all residents of the associated territory. There is nothing in the law to prevent the central district from charging for regular academic work in the upper grades or for textbooks in any subject, but to do so is not a common practice. Tuition may be charged for all students outside the associated district who take industrial work above the sixth grade, at the rate of one and a half dollars a month in the seventh and eighth grades, and not to exceed two and one half dollars a month in the high school department. If only one industrial subject is taken by the student, a charge of not more than two dollars can be made. A very interesting feature of the tuition law is that provision is made for the individual to attend school free of charge, the tuition being paid by the state. This, naturally, is an advantage to the individual.

Rural schools may become associated with a Central School by petition of twenty-five per cent of its freeholders. Ten days posted notice must be given before the election. All legal school voters, both men and women, may vote, and a majority of the votes cast are necessary to effect association. Any number of rural schools may become associated with the Central School. The board of education of the Central School and the State Board of Education must approve the action of the rural schools' voting to associate before they are legally associated.

The associated school board consists of the three members from each rural school associated and the six members of the central district, provided this is an independent district. This general board meets annually on the first Monday in August to audit the accounts and expenditures

for the past year, and to appoint a managing board for the ensuing year. A tax may be voted by the rural associated district for building purposes, and not more than two mills for maintenance. The managing board is composed of one member from each associated district and the entire board of the central district. This board holds regular meetings from time to time during the year and has the management of the associated district. The officers of the Central School are by law the officers of the associated board.

Relationship and obligations between the associated and central districts may be terminated at any annual school meeting by a majority vote of all the associated school districts, provided at least one year's notice of the intention to vote on the question is given the central district. Such an arrangement makes it possible for any district that is not satisfied with its conditions under association to withdraw within a reasonable length of time.

State aid to the amount of \$200 per associated district is given to the Central School. Each rural associated district receives \$50 aid. This aid is given only on the recommendation of the superintendent of the Central School as well as that of the county superintendent.

In addition the central school receives \$1,000 for agriculture, \$600 for home economics, \$600 for manual training, and \$600 for commercial courses.

The authority of the superintendent of the Central School is the same for the associated schools as he exercises over the central district. By law "he shall prepare for the associated rural schools a suitable course of study, embodying training and instruction in agriculture and industrial training and such subjects as are related to farm life and can be successfully taught in rural schools." This authority and supervision, with the hearty co-operation

of the county superintendent, can be made of permanent benefit to the rural schools.

Land to the extent of at least five acres for demonstration and experimental purposes may be provided within two miles of the Central School. The associated board may at its discretion provide land for experimental work in each of the associated schools. In Minnesota this land was used largely for school gardens at first, but it was soon found to be better policy to have the gardens at home under supervision of the agricultural department, where the children could take care of them during the summer.

The Associated Schools at Cokato, Minnesota, have become quite well known during the last half dozen years. The splendid work done by Superintendent Hargrave and his corps of teachers prepared the way, but to the inexhaustible energy and untiring effort of Superintendent John Munroe is due the credit of the organization of the large territory. The Cokato Associated District is about six miles wide and fifteen miles long and comprises twelve rural districts besides the central district at the village of Cokato. Situated in about the middle of this large territory of some eighty odd square miles is the Central High School, while at intervals of from two to three miles apart are the associated rural schools. This district has a valuation of over one million dollars, and has approximately one thousand students.

The associated rural school is to be distinguished from the consolidated school in that the associated district does not lose its identity, but merely affiliates itself with the central school for the purpose of getting the benefits of the agricultural and industrial work done in the school, as well as such as can be successfully taught in the rural schools under the supervision of the superintendent and special instructors.

Each rural district maintains its own school, but votes a tax of not less than two mills toward the industrial and extension work done in the associated districts, and can send its students to the central school free of charge. Since the work done at the Cokato School is typical of the Minnesota plan, a brief discussion of some of the school activities is given.

The Central School is now organized on the six-three and three plan; that is, six grades, a junior high school of three years, and a senior high school of three years. In addition to the ordinary academic work there are four special departments—agriculture, manual training, domestic economy, and a normal training department for the training of rural teachers. A “short course” is also offered during the winter months for young men and women who have not had the advantages of high school. This course has been popular from the start with an enrollment of nearly a hundred at first and an average of more than fifty for the six years of its existence. There was such a demand for the work of this course that a four-year short course was gradually formed, and two classes have now been graduated from this course. These graduates have averaged about twenty-three years of age, and have practically all gone back to the farms for their life work. That the work of the departments may be perfectly clear, a paragraph is given to each.

The agricultural department offers a brief course in the Junior High School. This course is required of all students, and offers one term of three months in farm crops in the eighth year, and one term of animal husbandry in the ninth year. In the Senior High School a full agricultural course of three years is offered for those who desire to elect that work. A perusal of the course will show

agronomy, or farm crops, in the first year, or tenth grade. Animal husbandry is offered for the entire year of the eleventh grade. General chemistry, made as practical as possible for two terms, is followed by a term of study on soils.

In the senior year the student gets two terms of agricultural engineering and one of farm management, in addition to building plans, cement, and other practical work



Figure 142. An exhibit made by the "short course" students at the central school of an associated district. These boys are all from the farms.

for the farm. The department has a large room especially fitted up for laboratory work in agriculture, and a classroom. A general laboratory supplies the needs of the other sciences.

The manual training department comprises two rooms in the high school building and a special building for forging, farm mechanics, and cement. The large shop for wood work will accommodate thirty to forty students and is equipped with full men's sized benches made in the department. A saw, run by motor power, is the only machinery, as the object is to teach work as it is done on the farm as nearly as possible. Students are taught to take care of the tools and to keep them sharp. The mechanical drawing room joins the wood working shop and is equipped with homemade drawing tables. The forge building was erected by the associated board at the expense of the farming community.

It is well equipped for ordinary work. Students are encouraged to purchase forges for the farms and to make use of them. The course in cement teaches the proper mixtures for ordinary use. Building blocks, posts, sidewalk blocks,



Figure 143. Associated school blacksmith shop.

cement floors, troughs, etc. are made and taught. Work in the manual training department is required in the grades and Junior High School, and elective in the Senior High School. The fifth and sixth grades have two seventy-five minute periods a week, and the eighth and ninth have that number of minutes daily. The seventh grade has a term of general industrial work, as basketry, clay modeling, camp cookery, sewing on buttons, mending, etc. This work is not done in the manual training department. Only boys take the regular work in manual training, as the girls of these grades have work in home economics.

The department of home economics is well equipped and occupies four rooms—sewing, domestic science laboratory, dining room, and pantry. Over one hundred and

fifty girls take work in this department annually, beginning in the fifth grade. As in manual training, the work is required in the grades and Junior High School, and elective in the Senior High School. The girls of the fifth and sixth grades have sewing twice a week. In the seventh grade both girls and boys are required to take some practical work in cooking and sewing. Domestic science is given daily in the eighth, with three double periods a week devoted to laboratory work. A course in canning is offered in the



Figure 144. The sewing room at the central school of an associated district

fall, and supplies for the use of the department are put up. Garment making is done in the last year of the Junior High School, or ninth grade. The sewing room is large and equipped with tables for drafting and cutting, and with sewing machines. The cooking laboratory accommodates twenty-eight students in a division, and is well provided with unilateral light. The pantry has been built especially for the department and contains home made sanitary, movable bins, and other conveniences. The dining room is well

arranged and contains a built-in china closet. The whole department is tinted in harmonious colors such as would be suitable for the home. A course in serving is given, and during the winter months the table is set regularly three times a week and half a dozen persons are served for luncheon or dinners. Tickets are sold for ten cents each for the luncheons and fifteen cents for the dinners. Each student in turn must plan the menu, purchase the materials, cook the meal, serve and act as hostess. Hot lunches are served daily from the time it is too cold to enjoy a picnic lunch on the lawn in the fall until the warm weather of spring arrives. From seventy-five to one hundred are served each noon. The students take turns in bringing the supplies and they are cooked by students from the normal training department who take turns in preparing the warm dishes and serving them, under the direction of the supervisor of the home economics department. The recipes given in Chapter XIX have all been prepared and served with entire success. Occasionally we find parents who pretend to think the serving of something warm with the cold lunch a fad, but usually such do not care to send the little food needed to carry on this work. On the whole the students think very highly of the plan. A three-year course in home economics is offered in the Senior High School. The subjects given may be seen under the courses of study.

The teachers' training department has for its object the preparation of teachers for the rural schools, but particularly for the schools of the associated district. A three-year course is offered, but the senior year only is given in the training department. No students are allowed to take the work until they are seniors in the high school, and many take the course as post-graduate work, that is, the last year of the course as offered in the normal depart-

ment. State aid to the extent of twelve hundred dollars is earned by all training departments in Minnesota. This, together with special inspection for this department, should insure high grade work. All students who take the normal training course in the senior year of high school or as post-graduate work, receive a first grade state certificate. This is good only in rural schools.

An ungraded room, or rural school, has been operated in connection with the training department. Twenty-two students were admitted the first year. These were selected from the regular grade classes, about half living in the country and half in town. The aim is to get an average school—not only backward students, not the brightest students. The program followed is the one suggested for three divisions in Chapter VIII, and the course of study is that given in this book under academic and industrial work. The ungraded room was a great success from the start, due, largely, to the hearty co-operation given, and the splendid results obtained by the supervisor of the department, Miss Mary A. Conant. Not once did we have a complaint from the parents that the children were not doing as well as in the grades. On the other hand, several requests that children might be allowed to take the work in this room were received. The students taking the training course do most of their teaching in this room under the direction of the training teacher. Before students are graduated and recommended for certificates they must have entire charge of the room for a week or more at a time.

The "short course" has been one of the best features of association at Cokato. These winter courses have been planned to meet the needs of the young men and women on the farms or in town who cannot avail themselves of the full high school course. There are but two entrance re-

quirements for this course—maturity and perseverance. Some students have been enrolled who did not know the language when they began. No student under sixteen years of age is eligible to the short courses. The question is sometimes raised whether the short courses do not draw students from the regular courses and thus encourage them to attend school only three months instead of nine months. Such has certainly not been the case at Cokato, as most of the students are those who have left the country schools years before, and would never attend the regular high school if it were not for the special courses. Indeed several persons have taken the short course, have “found” themselves, and have taken the regular high school courses. The four-year course of study for the “Short Course” follows:

COURSE OF STUDY

FIRST DIVISION

First Year

English, 5
Woodwork, 5
Farm crops, 5
Practical Arithmetic, 5
Plain cooking, 10
Poultry, 5
Writing and spelling, 5

Second Year

English, 5
Woodwork, 5
Animal husbandry, 5
Farm Accounts, 5
Home Accounts, 5
Domestic science, 10
Commercial geography, 5

SECOND DIVISION

Third Year

English, 5
Iron work, 5
Soils and fertilization, 5
Farm management, 5
Drainage, 5
Sewing, 10
Bookkeeping, 5
Business law, 5

Fourth Year

English, 5
Cement and building, 5
Corn culture, 5
Farm mechanics, 5
Domestic art, 10
Political economy, 5
Civics, 5

Business writing, spelling, rhetorical and debate required at the general period throughout the course.

Notes on the Course

It will be noticed that the course is divided into two divisions for economy in handling the classes. The plan is to alternate the work

of the first and second years, as well as that of the third and fourth years, offering half of the subjects of a division one year and the other half the next. That is, those who come in for the first time this year will take their work with the second year students, and the two will constitute the first division classes. In the same way the two classes of the second division will be combined. This combination will insure large classes, a better course can be offered, and only about one half the teaching force is required. The numerals indicate the equivalent of single periods per week. Each student working for credit should elect twenty units per week, as this is the basis required for graduation. The first two years of English are required of all students. The rest of the work is elective except the general period.

A women's class has been organized to meet once or twice a week for about two hours in the afternoon during the winter months. Drafting of patterns, dressmaking, home accounts, food study, home sanitation, and the demonstration of new recipes are among the topics studied. Most of the work has been done by actual demonstration and lectures rather than by textbooks. The women were encouraged to draw reference books from the library and to get government and station bulletins on the topics under consideration. A great deal of interest has been shown in these meetings. Women from the country as well as from town have participated. The great majority of those attending these courses are actual home makers, busy but progressive, who think it worth while to keep abreast of the times in things that have developed since they were in school. There is no reason why similar work should not be conducted in the rural schools, especially when these schools are associated with some central high school where help from the special instructors can be obtained or where there is a rural consolidated school.

The reorganization of the graded system has undoubtedly resulted in more efficient work, although it is still too early to judge permanent results, as the plan has been in operation but two years. The usual twelve years' work are maintained in the Central School, but, instead of the

traditional plan of eight and four years, there are four units equal in time. The central idea of the first three years, or Primary Division, is to guide the pupil in such a manner that he may become an independent reader, and to teach him to express his thoughts clearly. The first purpose can be accomplished only by emphasis of the mechanical side of reading, or phonics, and the reading of twenty or thirty suitable books a year, and the second is taught by oral and written language, dramatization, and industrial work. In the Second Division, or grades four, five and six, the fundamentals of all the so-called common branches, including industrial work, are taught. Every teacher, at least, must realize that it is possible to do much more work than is usually done in the eight years of the grades. Everything ordinarily done in the grade school can be done in six years, and done more effectively and with fewer "home tasks," under an environment that will stimulate the best energy of both teacher and pupil. Like the steam engine, only a small per cent of the energy of the average schoolroom is useful work. This condition of our public school system can and will be remedied. As this phase of school work has been discussed more in detail in previous chapters, a passing reference will suffice here.

The Junior High School is the third division, and is conducted on a plan whereby the pupils of the seventh, eighth and ninth grades form one unit of the school organization. The departmental plan is followed. That is, instead of having one teacher for each grade, there is a group of teachers for the entire unit. Each teacher is especially well qualified to teach one or more subjects, as history and arithmetic, English and penmanship, etc. The students have four or five different instructors during the year, at least two of whom are men. The instructors of the in-

dustrial departments have classes from both Junior and Senior High Schools. It would seem that the strongest argument in favor of the Junior High School is that in view of the fact that the great majority of students never go beyond the grades, the work of the upper grades should be made more practical for them. In other words the course should be made, as far as possible, a preparation for life rather than for high school. This doctrine seems iconoclastic to some, probably because we are only just beginning to get away from the idea that the high school should be primarily a preparation for college. Experience has shown that many students who would drop out of school at the end of the eighth year will remain for the ninth, when the work of that year is part of a definite course. Students who do not expect to complete the regular four year high school course are reluctant about starting with algebra or Latin. The experience of almost every high school is that many more drop out during the freshman year than during any other year. Our experience since the reorganization has been that the enrollment of the ninth grade has increased about fifty per cent. Not only practically all the eighth grade of the central school finish the ninth, but many pupils from the associated rural schools come in to finish the Junior High School. The results so far have been gratifying indeed, and the effect upon the student seems to have been an incentive to finish the Senior High School also, rather than to be content with a diploma from the Junior High School. Those who do quit school have a much more practical course than under the old arrangement.

The tabulation shows the course of study for the three years' work. A general assembly period of forty minutes daily for chorus, rhetoricals, and other exercises is re-

quired of all students. The only elective subject in the Junior High School is Swedish. This language is offered because a very large percentage of the pupils are of that nationality. It is taught by the direct method and no English is used during the recitation. The usual high school course in Swedish is offered in the seventh and eighth years, the grammar being given the last semester instead of the first. Those who do not elect Swedish are required to take a course in English classics in addition to the regular course in English which all take.

JUNIOR HIGH SCHOOL COURSE

Note: Where no figure follows the study one term of three months is given.

First year or seventh grade: English 3, industrial work, elementary science, Swedish 3 or English classics 3, geography, commercial geography, writing, spelling, music, arithmetic.

Second year or eighth grade: English 3, cooking 3 or manual training 3, Swedish 3 or English classics 3, accounts, general history, general agriculture, drawing.

Third year or ninth grade: English 2, grammar, arithmetic 2, history 2, civics, sewing 3 or manual training 3, general agriculture, physiology.

The Senior High School constitutes the last unit and consists of the tenth, eleventh and twelfth grades. In this division the work is largely elective. Six courses are offered, and there is at least one elective each year in each course. The work of the Junior High School is not elective, because it consists chiefly of subjects that are fundamental and will be useful whatever the vocation of the individual may be, and because students are not old enough to intelligently elect a course at that time. As the tabulation gives the subjects offered in each year of the six courses, further discussion is unnecessary.

SENIOR HIGH SCHOOL COURSES

Note: Where no figure follows the study one term of three months is given.

College Preparatory—Tenth Grade: English 3, elementary algebra 3, zoology 2, botany, elect one 3. Eleventh grade: English 3, plane geometry 3, modern history 3, elect one 3. Twelfth grade: English 3, physics or chemistry 3, elect two 6.

Normal—Tenth grade: English 3, elementary algebra 3 or plane geometry 3, domestic science 3, agriculture, zoology 2, botany. Eleventh grade: English 3, modern or ancient history 3, chemistry 2, analysis of foods 1 or physics 3, sewing 3, agriculture. Twelfth grade: English (including grammar) 3, arithmetic,

geography, music 6 weeks, agriculture 6 weeks, civics 6 weeks, physiology 6 weeks, history, industrial work, manual training 6 weeks, sewing-cooking 6 weeks, school organization, observation and practice teaching 3.

Agriculture—Tenth grade: English 3, zoology 2, botany, agronomy 3, practicums, manual training 3. Eleventh grade: English 3, animal husbandry 3, practicums, chemistry 2, soils, elect one 3. Twelfth grade: English 3, agricultural engineering 2, farm management, practicums, iron work 2, cement, mechanical drawing, elect one 2.

Manual Training—Tenth grade: English 3, woodwork 3, mechanical drawing 3, elect one 3. Eleventh grade: English 3, woodwork 2, shop accounts, mechanical drawing 3, elect one 3. Twelfth grade: English 3, iron work 2, cement, mechanical drawing 3, shop practice 3.

Home Economics—Tenth grade: English 3, home accounts, vegetable gardening, poultry, domestic science 3, elect one 3. Eleventh grade: English 3, elect one 3, dressmaking 2, domestic art, chemistry 2, analysis of foods. Twelfth grade: English 3, house plans, sanitation, home decoration, food study and household management, physiology and home nursing, textiles and purchasing supplies, elect one 3.

Commercial—Tenth grade: English 3, accounts, bookkeeping 2, German 3, elect one 3. Eleventh grade: English 3, German 3, shorthand, typewriting, commercial writing, elect one 3. Twelfth grade: English 3, Swedish 3, commercial spelling, commercial geography, commercial arithmetic, political economy, commercial law, office practice, shorthand and typewriting 3.

The advantages of association to the rural communities themselves are many. Thus far we have considered only the work at the Central School, all of which is free to the pupils from the associated districts. That a large number from the farms take advantage of these opportunities is shown by the present enrollment. The records show that 64.3% of the Junior High School students, and 71.4% of the Senior High School students live on farms. The latter figures include nearly forty "short course" students, the majority of whom are from the rural districts. The percentages from the farm of each grade make an interesting study. The "Short Course" leads, naturally, with 88%. The others are as follows: Twelfth grade, 53%; eleventh grade, 67%; tenth grade, 66%; ninth grade, 70%; eighth grade, 59%; seventh grade, 30%. In actual numbers there are nearly three times as many students in the high school departments as there were before association was effected, and the percentage from the country has increased in about the same proportion. The large percentage from the country in the ninth grade justifies the contention that the Junior High School plan holds students in school longer

than the ordinary organization of the grades. In numbers also the ninth grade is the largest in the history of the school, having at present exactly the same number as in the eleventh and twelfth grades combined.

Land values in the associated districts have greatly increased and no one will deny that the activities of the schools and allied organizations have been instrumental in no small way in bringing this about. How? By demonstrating that three or four times the state average yield of corn is entirely possible on every farm by proper selection and management; by teaching better methods of farming; by encouraging farmers to keep records; by showing the value of rotation of crops; by assisting in drainage; and by preaching to the community the possibilities of the farm and the advantages of country life. The work of the farmers' clubs has been discussed elsewhere. These were organized by the school, and, although entirely capable of managing their own organizations, they still look to and receive aid from both the rural and central schools.

The school farm has probably been about as successful and as unsuccessful as many other school farms. In many ways it has been beneficial. For example, a small orchard of about two acres has been set out to demonstrate that many varieties of orchard fruits are adapted to the community.

It used to be thought that Minnesota could not grow apples, and yet no other state has produced a variety that can equal the flavor of the Wealthy. Small fruit has been given attention on the school farm. Corn breeding, demonstrations with grains and grasses, fertilizer tests, and a three-year rotation plan are among the worthy projects of the ten acres used for that purpose. There has been criticism of the farm—some just and some unjust, as is usually the

case. The most serious mistake that has been made is in the operating expenses. A tract of valuable land worth one hundred and fifty dollars an acre should be made to pay at least all expenses when the supervision is by the specialist in agriculture and whose time is paid for by the school. The farmers have objected to the unprofitableness of the farm, and, I think, rightly. On the other hand, it must not be expected that the demonstration plot of land is merely to show a profit. That side of the question is the other extreme. Ten acres of corn could be made to pay a fine profit each year, but it would not show any more than the boys' corn contests are already showing. In my judgment the school farm should do two things—act as the outdoor laboratory for the classes in agriculture, and demonstrate a rotation plan managed to show a profit. That is, ten acres could be divided about equally one half to be used for small demonstration plots of grains, grasses, cultivated crops, small fruits and orchards; the other half in larger tracts for permanent rotation of grain, grasses and cultivated crops. The first part is not expected to show a profit, any more than the physics or chemistry laboratories are expected to show a profit. In fact a hundred dollars or two spent on this outdoor laboratory might be advisable. But the other part should be run for profit, records kept of all operating expenses, everything done on a business basis, tools cared for, the land kept free from weeds, and products harvested and marketed in a model way. True, the cost of production will be greater per acre for a small tract like this, but it can be made to pay. Young agriculturists too often feel their services are too valuable to spend much time on the school plots. This is a mistaken notion. The farmer is skeptical until shown. The man who is not afraid to put in ten hours or more a day on the school farm

in the summer can make it pay and will not only earn his salary, but the confidence and good will of the farmers. Student labor in planting and harvesting while school is in session is very necessary for its training, and will save considerable expense. I believe in the school farm and also in the agriculturist's not being ashamed to be a farmer. Happily many of them are not, but some give that impression, and they always injure the cause for which they are working.

Institutes have been held at the associated schools several times during the year. On several occasions the schedule has been arranged to go to the schools in rotation each evening until the entire district had been covered. Often two meetings an evening are held. Three or four speakers from the Central School take part, half going to one school and half to the other. Then two speakers exchange. In this way at least three persons would take part in each program. A machine and good roads make the exchange possible in a very short time. From one hundred to one hundred and fifty are common audiences at these meetings. Topics of general interest to the community are discussed. At least one woman of the faculty takes part in the program. Often speakers from the University Extension Division assist.

The uniform course of study in the associated rural schools is practically the work discussed in chapters seven to twenty-five inclusive of this book. The schools are supervised by the Central School as well as by the county superintendent. The special teachers from the industrial departments visit the associated schools from time to time and give demonstrations in their particular branches, as well as supervise the industrial work. The rural course of study articulates directly with the Junior High School of the

central district, so that no time need be wasted in getting used to high school, as so often happens.

A general meeting of the teachers of the associated districts is held about once a month on Saturday at the Central School. An all day session beginning at nine thirty and closing about three thirty is devoted to discussions of the problems of the rural schools. The work in home economics is conducted by the supervisor of that department in the Central School. Agricultural and manual training discussions are stimulated by the instructors of



Figure 145. The regular monthly teachers' meeting for the associated schools. A demonstration of the hot lunch to teachers and board members. The homemade bookcase for the circulating library can be seen in the corner.

those departments, while the normal training teacher and the superintendent assist in a more general way. At first these meetings were called by the superintendent of the associated schools, but gradually they have been turned over to the teachers themselves, until they now have a permanent organization, and a program committee to select the topics for discussion. Several of their own number are on the program at each meeting, as well as teachers from the Central School. Occasionally an outsider is

asked to speak. Visiting teachers are always welcome and often attend. Academic subjects as well as industrial work are discussed, and musical numbers form the entertainment part of the program, while much valuable help is given the teachers by visits to the school by the superintendent and special teachers. Perhaps the most direct benefit to the rural schools is the course of study and the teachers' meetings. The Associated Board, realizing this, pays for the transportation of the teachers, thus encouraging them to attend. Since that time it is seldom that one of the fifteen rural teachers is absent from a meeting. Luncheon is served at noon in the dining room of the Home Economics Department.

Industrial supplies are furnished each associated school to the extent of fifteen dollars' worth annually. These supplies include weaving materials, clay for modeling, raffia and rattan for mats and basketry, thin lumber for manual training, and materials for the work in sewing.



Figure 146. Preparing industrial material for the rural associated schools.

Each school has been furnished a two-burner kerosene oil stove and oven and about a dozen and a half cooking utensils for the hot lunches served at noon. About half of the schools have benches and tools for manual training. The rest will be supplied as fast as they desire to install this work. Rope for splicing and learning to tie knots has been furnished and instruction given by the instructor from the Central School. A collection of three dozen bottles of weed, grain, and grass seeds in a case has been made for each school, to be used as a guide in taking up similar work in the associated schools.

Contest work has already been mentioned. The Associated Board voted \$125 a year for this work to be used at the discretion of the superintendent. Fifty dollars of this is used in prizes for the annual acre yield corn contests and seventy-five dollars for the associated school exhibits held each spring at the Central School. The highest ten in the corn contest just closed averaged over eighty bushels to the acre, the highest being one hundred sixteen bushels and five pounds of shelled corn, as determined by the state officials for this work, and the lowest, sixty bushels and twenty-four pounds. The average yield at a cent a pound, which these boys were offered at husking time by seed men, will pay big interest on five hundred dollar land, after paying all operating expenses. If ten boys, all of whom are under high school age, can be taught to increase production along one line to such an extent, what can a whole community accomplish, if they become interested in better farming? This is a theoretical problem that it would pay every school district to make practical.

The annual exhibit of the associated schools includes all phases of school work, academic as well as industrial. Great interest has been shown by pupils and teachers

alike. In addition to the individual and school prizes, a silver cup trophy is offered, which becomes the permanent property of any school winning it for two successive years. The premium list for the 1915 spring exhibit follows:

**PREMIUM LIST FOR CONTEST IN ASSOCIATED SCHOOLS,
SPRING OF 1915**

PENMANSHIP

- | | | | |
|------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| 1. Best individual specimen of writing, including movement exercises, small letters, capitals, figures, and words..... | .75 | .50 | .25 |
| 2. Best general display from all grades..... | .75 | .50 | .25 |

GEOGRAPHY

- | | | | |
|------------------------------------------|-----|-----|-----|
| 1. Best relief map of Minnesota..... | .75 | .50 | .25 |
| 2. Best relief map of any continent..... | .75 | .50 | .25 |
| 3. Best drawn map, any kind..... | .75 | .50 | .25 |

LANGUAGE

- | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| 1. Best booklet on any one of the following topics: Corn, Noxious Weeds, Vegetable Garden, Strawberries, Apples, Poultry for Pleasure and Profit, Farm Animals, Bee Culture, Home Sanitation, The Typhoid Fly..... | .75 | .50 | .25 |
| 2. Best general display from all grades..... | .75 | .50 | .25 |

ARITHMETIC

- | | | | |
|----------------------------------------------|-----|-----|-----|
| 1. Best general display from all grades..... | .75 | .50 | .25 |
|----------------------------------------------|-----|-----|-----|

ELEMENTARY INDUSTRIAL WORK

- | | | | |
|-------------------------------------------------|-----|-----|-----|
| 1. Best woven mat, yarn or cloth..... | .75 | .50 | .25 |
| 2. Best hammock..... | .75 | .50 | .25 |
| 3. Best napkin ring..... | .75 | .50 | .25 |
| 4. Best raffia or reed mat..... | .75 | .50 | .25 |
| 5. Best raffia or reed basket..... | .75 | .50 | .25 |
| 6. Best yarn cap or bonnet..... | .75 | .50 | .25 |
| 7. Best clay exhibit..... | .75 | .50 | .25 |
| 8. Best general exhibit of industrial work..... | .75 | .50 | .25 |

SEWING

- | | | | |
|------------------------------------|-----|-----|-----|
| 1. Best needle book..... | .50 | .35 | .25 |
| 2. Best outing flannel holder..... | .60 | .35 | .25 |
| 3. Best gingham holder..... | .50 | .35 | .25 |
| 4. Best sleevelets..... | .50 | .35 | .25 |
| 5. Best cap..... | .50 | .35 | .25 |
| 6. Best hemstitched towel..... | .75 | .50 | .25 |
| 7. Best stockinet darning..... | .75 | .50 | .25 |

8.	Best buttonholes.....	.75	.50	.25
9.	Best gingham bag.....	.75	.50	.25
10.	Best sewing apron.....	.75	.50	.25
11.	Best hemmed patch.....	.75	.50	.25
12.	Best three-cornered darn.....	.75	.50	.25
13.	Best outing flannel nightgown.....	.75	.50	.25
14.	Best overhand patch.....	.75	.50	.25
15.	Best general exhibit of sewing.....			
	Each article is to be made as directed in course of study.			1.00

MANUAL TRAINING

1.	Best match scratcher.....	.50	.35	.25
2.	Best plant marker.....	.50	.35	.25
3.	Best salt box.....	.75	.50	.25
4.	Best match box.....	.75	.50	.25
5.	Best other article.....	.75	.50	.25
6.	Best composition on "Manual Training in the Rural School".....	.75	.50	.25
7.	Best general exhibit in manual training.....			1.00

AGRICULTURE

1.	Corn judging contest.....	.75	.50	.25
2.	Corn germinator with germinating corn ready to count. Must include report on test and opinion of seed by exhibitor.....	.75	.50	.25
3.	Long and short splice (both must be included).....	.75	.50	.25
4.	Best general exhibit of rope work including knots and splices.....	.75	.50	.25
5.	Best noxious weed seed exhibit to be selected and determined by the school.....	.75	.50	.25
6.	Best general exhibit in agriculture work.....			1.00

Saving banks have been established in some of the schools due to the interest shown by one of the teachers. Nearly thirty depositors had saved about one hundred dollars in this school alone during the first four months. Monday is banking day, and all deposits are made in the morning, the students receiving stamps as their certificates. As soon as one dollar has been saved it is taken to one of the banks in Cokato and deposited. This is done for the pupils by the teacher. The idea is an interesting one for rural schools and is to be commended.

Drainage has been mentioned as one of the practical things the farmers have had done, or at least the work

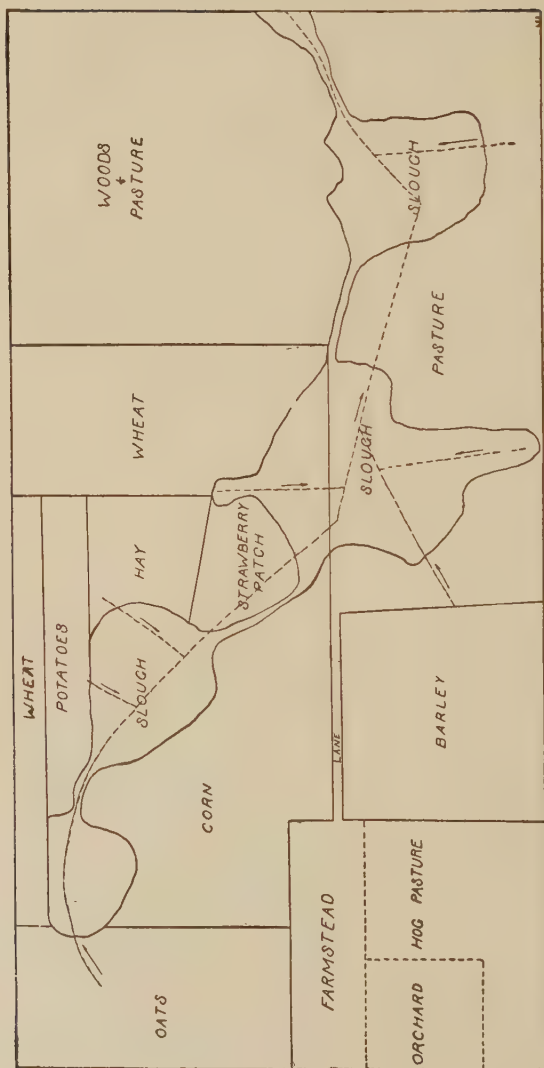


Figure 146. Farm drained and planned by two "short course" young men under the direction of the agricultural department of the central school.

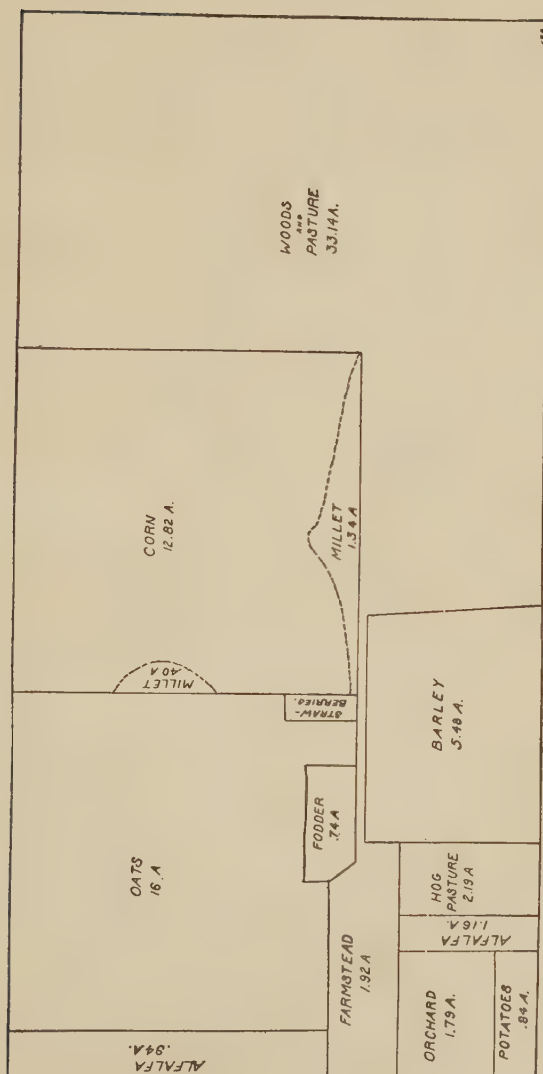


Figure 147. The same farm the next year.



Figure 148. The same farm the second year, showing a permanent rotation.

has been surveyed and estimated by the school. The accompanying cuts show the evolution of a farm from a marsh to a very valuable piece of property. The improvements were largely planned and executed by the two young men who graduated from the "Short Course." The first drawing shows the original "frog ranch" as it was called by one of the young men in his graduation exercises. It also shows the drainage plans which were completed the next year. The second drawing shows the crops the next year following, and the third, the rearrangement of the fields and the permanent rotation plans. At least ten acres of this land were under water and hence worthless. This is now the best land on the farm and worth \$125 to \$150 an acre, but is not for sale at any price. Ten acres more were good only for permanent pasture, and the other sixty acres of the farm were materially benefited by the drainage. Five thousand feet of from four to seven-inch tile were used at a total cost of \$450. At least \$1,000 above the cost of drainage was realized on the reclaimed land alone, not to mention the improvements of the other land. Similar work has been done on other farms, due directly to the influence of the school.

Association is not a panacea for all the educational ills by any means. In spite of the fact that so much good work along lines suggested in this chapter has been done in many communities besides the one mentioned as the type, there is a certain amount of dissatisfaction. Even at Cokato, where the spirit of co-operation is as good as that found anywhere in the state, one district withdrew shortly after it became associated. This was done purely on account of personal differences, as the district is now paying twice the amount in tuition that association cost. Its local school taxes have increased while those of the districts associated

have nearly all decreased, and both it and the central district have lost the \$200 associated aid. Almost the only objection raised is the cost of association, and yet in the entire district associated at Cokato the average school taxes are only 5.6 mills. As two mills are for association, these fifteen schools average only 3.6 mills for local school support. In practically every district the tuition bill would be greater out of association than the entire cost of association. If only a small fraction of the increase in farm yields and land values is due to the schools under association, which the critics cannot deny, then association is worth many times what it costs. It is like killing the goose that laid the golden egg to break up association of schools, as has been done in some places. The Putnam Act, including association of rural schools, is one of the best school laws ever placed on the statutes in Minnesota. It is primarily a law that benefits the rural school and the rural community, and yet, strange to say, the farmers themselves have been its greatest enemy. That they have been misled in the belief that their general taxes have been raised thereby, by politicians and other interested parties is certain, but such misunderstandings will adjust themselves in the end. The "Minnesota Plan" is likely to be more popular than ever, when public sentiment crystallizes in favor of better rural schools.

CHAPTER XXIX

CONSOLIDATION OF RURAL SCHOOLS

In a recent lecture on community welfare a speaker made the statement, "The one-room rural school is no good." He cited the results of a survey of the rural schools of Wisconsin among which was his home school as a child. This school had sent but three individuals to college in twenty-five years. The building and equipment had remained about the same, and the community life had changed but little in all that time. There are probably many who would disagree with the lecturer and stoutly defend the school of their fathers. But, notwithstanding our sentimental toleration of the "little red schoolhouse," it has outlived its day as surely as the occasional prairie "schooner" that may be seen on the Western plains. Association with a central high school helps amazingly, as shown in the last chapter, and for the present is undoubtedly better for some sections of the country than consolidation. In localities where roads are poor and the country is sparsely settled, consolidation will be retarded; but the time is about at hand when the country will demand that rural children be given equal educational advantages with the village child. Why not? The country is surely not too poor to educate its children. Modern machinery relieves the farm of much of its drudgery and the necessity of keeping boys and girls at home to work no longer exists. The chief obstacles in the way of better country schools are the school buildings and their inadequate equipment.

Consolidation of schools means several things that previously did not exist. It means, first of all, combining the territory of two or more school districts for the support

of the school. It means concentration of power. "In union there is strength." It means larger buildings, increase of school taxation, transportation of pupils, reorganization of grades, state inspection, and state aid. On account of these changes, conservative districts have been slow to effect consolidation. In Minnesota a few years ago a law was passed which encouraged consolidation of rural schools to such an extent that over one hundred have been effected since that time. A rural school commissioner has been appointed who devotes his time largely to these schools.

The Holmberg Act of 1911 created three classes of consolidated districts. Class A must have an area of at least eighteen sections of land, have at least four departments, and be well equipped for instruction in agriculture and other industrial work. The state aid available for such a school is \$500 annually. Class B schools must have the same territory as Class A, three departments, and good equipment. They receive \$250 annual aid and building aid as for Class A. These schools may draw as much as \$2,000 for transportation of pupils. Class C schools have twelve or more sections, two departments, and draw rural school aid. High and graded schools having a tax in excess of twenty mills and rural schools exceeding fifteen mills are entitled to further state aid.

The various steps in the process of consolidation in Minnesota are briefly given for those who may not be familiar with the Holmberg Act. A plot of the proposed territory to be consolidated must be prepared by the county superintendent and submitted to the state Superintendent of Education for his approval. If approved, petitions are circulated in each of the districts interested. Only resident property owners can sign the petition, and the signatures must be certified. At least twenty-five per cent

of the freeholders of the district must sign the petition after which it is filed with the county superintendent. Within ten days the county superintendent must give ten days' posted notice, three in each district, and one week's published notice, of an election to vote on the question. At least twenty-five legal voters must be present at the election, voting by ballot for or against consolidation, and the polls must be open at least one hour. The result must be certified to the county superintendent by the chairman and clerk of the meeting who are chosen by the voters present. A majority of all votes cast legalizes consolidation. The county superintendent notifies the clerk of each district, the county auditor, and the Superintendent of Education that consolidation has been effected.

Election of officers for the new independent district takes place at a meeting called for that purpose. Ten days posted notice must be given by the county superintendent before such a meeting. Six officers are elected. As soon as the new officers are elected, the records, funds, and other property of the several districts must be turned over to the new district. Bonded indebtedness at the time of consolidation remains on the original districts.

Several forms of consolidated schools exist in Minnesota. High or graded schools with sufficient area to come within the Holmberg Act may qualify for state aid. Several are already doing so. All students living more than two miles from the school must be provided with transportation. In these schools the village becomes the center of the school activities, and, since in small towns the environment is essentially rural, the purpose of the law is not defeated. Perhaps the best type of consolidated school is that found in the country away from any railroad or village. It is no longer a fond dream of the imagination to have a high

school education carried almost to the very doors of the farmer's boys and girls. This is now an actual reality in many schools. Modern buildings with all the conveniences of city schools are being erected sometimes miles away from any town. Advanced ideas of school architecture and sanitation are being carried out, so that as a class the consolidated schools of the state are second to none. Under the able leadership of Mr. E. M. Phillips, former Rural School Commissioner, these schools more than kept pace with Minnesota's vigorous educational policy.

The consolidated school idea probably became best known in Minnesota through the activities of the school at Lewiston, in Winona county. Enough districts combined with the school in the little village to maintain not only a high school course, but departments of industrial

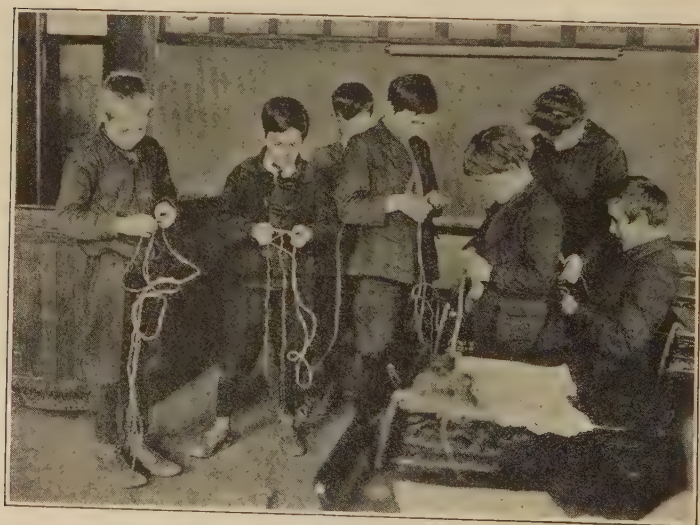


Figure 149. Rope work in a consolidated school.

work as well. A school farm is maintained and effective agricultural work done. The principal of the school is also the agriculturist. Wood and iron work is part of the regular course for the boys and they have recently built a blacksmith shop and a model henhouse. The girls have facilities for studying home economics. Special features of the school are the extension work done on the farms, contests, institutes and the short courses for farm boys and girls. On account of the unusual work which is being done in this district, the school was selected as one of the original Putnam schools. This school was thus honored, as all of the other nine were high schools. A large amount of industrial work is done in the grades by what the principal, Mr. Edwin S. Billings, calls the "direct—indirect" method. The grade teachers are first taught how to do the work in which they give instruction to the pupils.

The John Swaney Consolidated School of Putnam county, Illinois, has a national reputation. It was named for the man who was broad-minded and large-hearted enough to give twenty-four acres of valuable wooded land for a campus. The school is located in the open country away from any town. The most remarkable thing about it, perhaps, is the fact that the movement for consolidation and transportation of pupils started with the farmers themselves. So enthusiastic did many of them become that about \$2,000 was raised by private subscription, in addition to the gift already mentioned. The school was erected and equipped at a cost of about \$15,000. Practical courses are offered similar to those discussed for the Lewiston school. A school farm is maintained on the campus. Two wagons, especially constructed for the purpose, transport the pupils in spite of the Illinois corn land mud. Good teachers are provided and cared for. It was soon discovered that, if efficient

teachers were to be kept in the county, provision must be made to house them. Accordingly, a few farmers, at their own expense, fitted up one of the old schoolhouses into a neat seven-room cottage. The teachers club together, hire a housekeeper, and divide the living expenses. They pay nine dollars a month rent for the cottage. Another building on the campus has been fitted for the janitor's home. The janitor is engaged for the entire year and has charge of the school, the stables and the grounds. Such a school and community deserve a national reputation.

The history of consolidation of schools in the United States is an interesting one. In early Colonial times the township was the unit of school administration. Sparse settlement, impassable roads, and lack of public funds prevented even a dream of consolidation in those early days. Therefore as settlement increased, more schools were needed and the New England taxpayers, lovers of true democracy, insisted that each school govern its own affairs. Accordingly, the smaller district was a necessity. The same year that Washington became President of the United States, Massachusetts passed a law bringing into being the small school district, which was destined to become the governing unit for most of the schools of the country. Horace Mann once declared this law to be the most unfortunate ever enacted under common school legislation. More than a century and a half later this same New England, convinced of the error of its ways, first saw the necessity of centralization in order to save the country schools. It was during the term of office of that other great President, Abraham Lincoln, that the same state that had unwittingly passed the reactionary law, created the consolidated school district. A short time afterwards a law providing for transportation at public expense made the consolidated school possible.

Progress was naturally slow at first. The same cry of "fad" that has always been heard from reactionaries retarded the movement. But reactionaries have never yet been able to permanently retard the progressive American spirit. The idea of consolidation permeated the rest of New England; other Eastern states adopted it; the plan spread to the Middle West; it became popular in the South; and even the Western States, in spite of many obstacles, are consolidating their rural schools for the same reason that Massachusetts first started the movement. Nearly every state in the Union has now done something toward centralizing its common schools. In many states thousands of one-room schools have been closed, and in their places are hundreds of flourishing consolidated schools. Even in Hawaii this plan has been "annexed," and Canada has profited by the experience of "Uncle Sam."

The objections to consolidation have been numerous, but practically all have been met, where public sentiment was really in favor of the movement. The most serious objection raised by the average community is the cost. The fundamental cause of the poor schools found in the country as compared with those in the villages and cities is to be found in the fact that the latter are willing to tax themselves two and one half times as much for schools as the former, taking the United States as a whole. That the total cost of establishing and maintaining a consolidated school will be more than the average cost for one-room schools is probably true. If not enough is spent in the average district to maintain efficient schools, it should be true. In states like Minnesota and others of the Northwest where more than generous aid is given to the schools, the cost is negligible as compared to the results. In many communities modern schools have been established, stu-

dents have been transported, and efficient results obtained at very little increase in total cost, and a decided decrease in the cost per pupil. The old plan meant irregular attendance and short terms; the new means the reverse.

Transportation of pupils has been a veritable nightmare to some of those who oppose centralization. I have had those who suddenly took a great interest in their neighbors' children tell me that these pupils would surely contract pneumonia, if they had to ride in a cold rig three or four miles to school. Others were afraid of a stove, because it would do injury if the wagon or sled should be tipped over. Soapstones and other warmers were ineffective, and fur robes would be torn to pieces. Just why these otherwise peaceful and harmless young persons should suddenly become barbarians, while the maniacal driver was planning their annihilation, has never been explained. The facts are, and they scarcely need stating, that the vans can be made as comfortable, as safe, and as desirable as the best family conveyance in the neighborhood. Business can afford the best there is for the "delivery" of merchandise in many places. Why cannot children be "delivered" speedily and comfortably to school? They will be in the ideal rural school.

The many advantages of consolidation hardly need discussion, as they are evident to any observing person. Among them should be mentioned first of all the same educational advantages for the country children that the city boys and girls possess. This is merely the application of the Rooseveltian "square deal" to the rural communities, which the country folk themselves more than any other agency have prevented until recently. Better schools bring a better citizenship. More progressive farmers will settle in the community. Land will increase in value, as actual figures

demonstrate. More desirable renters can be obtained, but there will be fewer farms to rent, as living in the country will be more desirable. The increase in land values much more than offsets the small increase in taxation, unless we figure as the farmer I once heard of who objected to larger crops, because his threshing bills would be so much higher. Finally, consolidation will greatly accelerate the "back to the farm" movement.

As a solution of the country life problem the consolidated schools stand pre-eminent. In this connection Miss Mabel Carney, in her excellent treatment of the subject in "Country Life and the Country School" says, "Let it be repeated that the consolidated country school in its complete and fully adopted form is the best solution of the country school problem yet devised. Personally, I do not wish to dogmatize upon any phase of country life, or anything else, but upon this point I stand firm. Years of struggle as a country teacher have thoroughly convinced me of this truth, and I challenge any one, be he farmer or educator, to assume the full responsibilities of a country school without becoming persuaded." That so many communities in so many states have already become persuaded, speaks well for the future.

CHAPTER XXX

COUNTRY LIFE AND THE IDEAL RURAL SCHOOL

The great country life movement started when President Roosevelt appointed his commission is only just beginning to gain momentum. It has a fair start, but when the half-aroused country folk really awaken to their responsibilities as well as their opportunities, nothing can prevent the rural population of this country from the realization of the kind of life to which it is entitled. City life is artificial at best. Country life should be the ideal life. Long working hours, lack of conveniences, poor roads, social ostracism, inadequate educational facilities, and other causes have thus far prevented this happy consumation. But America has solved big problems; and it will solve this one. The school will be no mean factor in the solution.

The object of life is neither to merely eke out an existence nor to amass a fortune, whether it be in the city or country. "It is not all of life to live." Culture is as essential in country life as in city life. Too often the object



Figure 150. One of the demonstration farms working in conjunction with the central school. This farm was drained and a rotation system planned by "short course" boys. See pages 404 to 407.

in rural life is to raise more corn, to feed more hogs, to buy more land, to raise more corn, to feed more hogs. An excellent means to an end, but what is the end? One often sees great barns erected high and dry to prevent disease, well lighted and equipped with the most modern systems of ventilation. Commendable, you say, and rightly so. Modern industry has shown that it is profitable to do these things for the cattle, the hogs and other animals; but modern country life has not yet been able to prove to the farmer that it is still more necessary to provide sanitation, conveniences and something for the higher life. How many farm homes have a special system of ventilation, and how many have a library? Some have.

Rural recreation is now being provided in many communities. City employes usually have their Saturday afternoons off. The law of fatigue holds for physical as well as for mental work and has proved that within reasonable limits shorter hours with greater application of effort are conducive to products of at least as large a quantity and better quality. Why not apply this law more generally to the farms? If the Saturday afternoon picnic and ball game are profitable for some rural folk, why not for all? The value of rural social life is being recognized more and more. The rural church, the farmers' clubs, the women's clubs and other organizations are making themselves felt in the country as never before. Already the dawn of a brighter day appears on the horizon of a new country life.

The rural school, as previously indicated, must be the very heart of the community. In a recent lecture before the Minnesota Educational Association on "The Schools That Made Denmark Famous," Mr. H. W. Foght, of the United States Bureau of Education, showed conclusively this fact. The following abstract from the lecture is taken

from the "Proceedings" of the association: "The lecture began with an emphasis of the fact that the schools, more than anything else, had made Denmark the agricultural nation that it is to-day. Fifty or sixty years ago Denmark was backward agriculturally as a result of war, and the nation was left in a lamentable condition. Then the poets, philosophers, preachers and teachers came to the rescue. The watchword of the time was, 'Educate every man, woman and child in the kingdom, and educate them for every-day needs.' Thus, within a lifetime, the nation has set up a rural school system little short of marvelous. The Danish farm boys and girls enter the elementary rural schools at the age of six or seven. They are all obliged to attend school until they have completed the eight grades. Then the so-called apprentice school, which is really learning practical work under government supervision, begins and continues for three years. When the youth is at last eighteen years of age, he enters a most remarkable culture school, known as the folk high school. Forty-eight per cent of all the farm youth attend these remarkable schools. Students are taken from eighteen to ninety-nine years of age; and, indeed, very many old men and women attend. This school has a one and two-year course. It is followed by practical work in one of the many local agricultural schools which are, in reality, small local agricultural colleges. The girls at this point attend rural schools of household economics. The result of this system of schools is such that the average farm boy or girl returns at the age of nineteen or twenty to the farm and farm tasks, contented to live there and to treat the soil in a scientific manner. These schools have made it possible for the Danish farmers to make good incomes from small tracts of land, which, if they were handled the way we treat our lands, would mean

immediate bankruptcy." Such schools may not be ideal, but they surely come more nearly being so than most of those with which we are familiar.

Of the various agencies in this country that have entered into the reorganization of our system in offering valuable constructive criticism, probably none is entitled to more credit than the Bankers' Associations. In Minnesota, under the able leadership of Mr. Joseph Chapman, this organization has consistently championed the cause of practical education. In a financial way, collectively and individually, the bankers have rendered valuable assistance in agricultural contests and other work.

The county superintendency, in a measure at least, is the key to the situation. The ideal rural school cannot be attained until this office is removed from politics. As long as efficient and progressive men and women are martyrs to political intrigue or to the malice of parsimonious taxpayers, merely on account of their efficiency and progressiveness—just so long must the schools suffer. In many states this has been done more or less effectively. In those states where a constitutional amendment is necessary for the enactment of laws making educational requirements for this office, it is the duty of the educators themselves, through their state associations, to urge the passage of such amendments.

Progressive county superintendents already favor such action. No self-respecting candidate cares to wage a fight that involves time, money and sometimes even reputation, to prove his superiority over an opponent that may be backed by some powerful organization, whether it be church, lodge, or political ring. Let the candidate for this office stand squarely where he belongs—on his own merits and fitness for the position. Then let an educational

board for the county choose the superintendent of schools from within the county or out, as seems best. Fortunately for the schools, the great majority of county superintendents are earnest, faithful, and efficient, in spite of antiquated laws. Too often this office does not have the respect that it should. A superintendent who is qualified and whose heart is in his work neither receives the appreciation nor the remuneration to which he is entitled. I have known able men and women who have done more to advance the welfare of the county and make known its advantages, materially as well as educationally, beyond the county lines, than all the real estate firms and commercial clubs combined. All this was done through local and state contest work in agricultural and industrial lines, as well as regular academic work. And yet these faithful workers receive a salary, perhaps half as large as the county treasurer or auditor, and in the end they may expect to be turned out of office for doing their duty instead of mending political fences. Such a state of affairs is an insult to the office and a disgrace to a state that tolerates it. All honor to the hosts of worthy county superintendents. They will be made real supervisors in the ideal rural school.

In conclusion the ideal rural school is not a myth. It is attainable. Such a school will provide for the physical, moral, mental and religious welfare of the individual. Whether there be one room or many, the building will be modern, sanitary, and well equipped. The grounds, park-like rather than bleak and barren, will be inspirational and aesthetic and will provide for physical as well as agricultural instruction. Nomadism will have vanished and the rural teacher, like the country preacher, will have become as much a permanent part of the community as the farmer. The teachers' cottage will be a conspicuous part of the

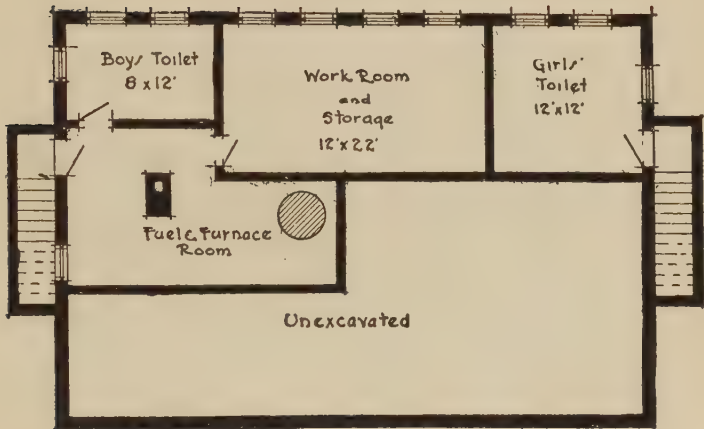


Figure 151.—Suggested basement for model school.

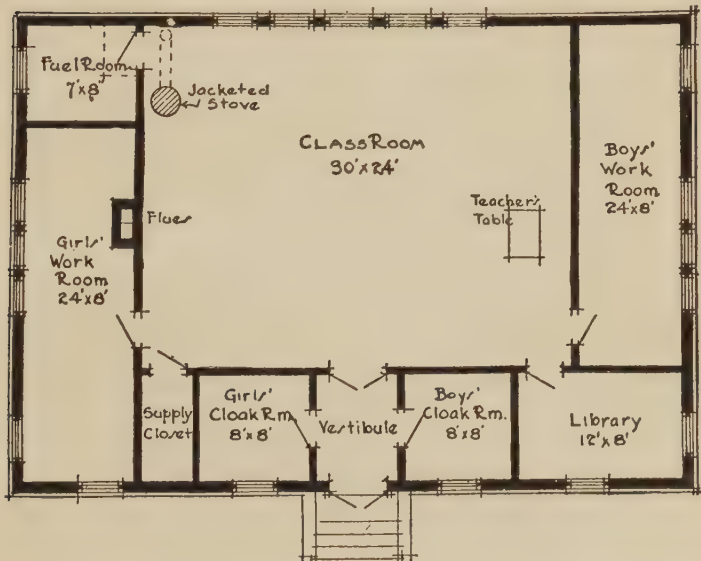


Figure 152.—Floor plan of one-teacher model school.



Figure 153. Modern community school building at Payette, Idaho.

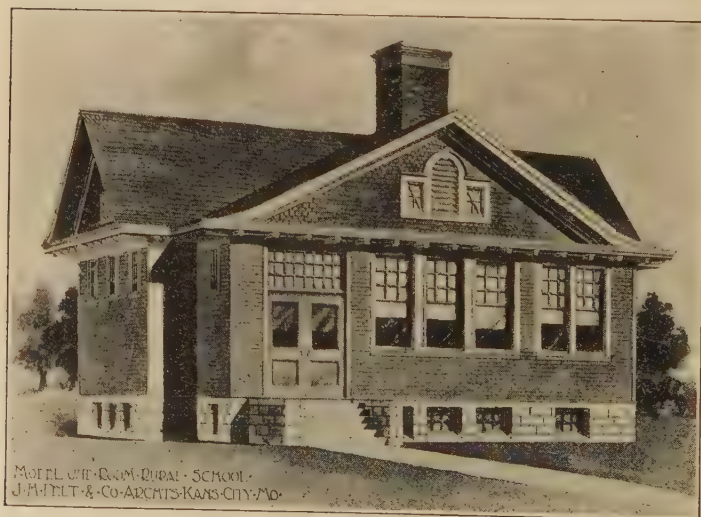


Figure 151. A model rural school building.

campus. There will be demand for only a superior type of teacher, highly trained and peculiarly adapted to modern country life. The state will do its part and there will be real inspection of rural schools. The farmer will realize that city school quality of instruction cannot be given on a country school tax rate, and the school will be made a community center. Through its redirected course of study it will be the leading spirit in a broader country life, in making better farms, better homes and better people. In that day when public sentiment shall make Education as honorable as War and Politics, shall the "Ideal Rural School" be attained. Then also shall the teacher be exalted to her rightful position and we shall exclaim with the poet:

To-day, as by the old schoolhouse I passed,
I saw a face where years of toil and care
Had left their mark and yet to me 'twas fair
In memory's magic light upon it cast.

My boyhood years are told again since last
I thought her cruel, and lessons hard to learn;
Ah me! I've found a teacher far more stern,
And learned hard lessons in a school more vast.

God's richest blessings on thee, faithful one,
Of that vast throng whose skill and patience mold
The nation's destiny! A service thine
Immeasurable, not bought with paltry gold.
When school is out, and evening's first stars shine,
Thou'lt hear the blessed Master's voice, "Well done!"



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